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Instructional design, course planning, and training program administration are the main aspects treated in this annotated bibliography. Most articles included were published between January 1960 and March 1968. The 447 abstracts appear under the main headings of: learning theory applied to instruction, planning, course management, and program administration. A subject index is included. (pt)

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training METHODOLOGY

PART II: PLANNING AND ADMINISTRATION

An Annotated Bibliography

AC004569

This annotated bibliography is the second of four indicating current thought on training methodology. Content for the four publications was selected from over 6,000 items. Most were published from January 1960 to March 1968. A few earlier items are also included because of their significance. Some useful material had to be omitted because of budgetary limitations related both to search and final printing; the sheer scope of the field precluded complete coverage of the literature. Certain annotations were borrowed from other publications (details are explained on the Credits page).

In the expectation that these bibliographies will be updated, the project administrators (listed in the Introduction) welcome comments and suggestions with respect to additions, deletions, classification system, indexing, and technical or typographical errors.

ERRATA SHEET

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Part II: Planning and Administration

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TRAINING METHODOLOGY

Part II: Planning and Administration

An Annotated Bibliography

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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INTRODUCTION

This bibliography pertains to aspects of instructional design, course planning, and training program administration. It is the second of a group of four on training methodology. References on all four are arranged in classified order, annotated, and indexed. Additional information about concepts emphasized in this publication may be located by reference to indexes of other publications in the group. (In some references coverage of a particular concept was secondary or even peripheral to the major topic, but its inclusion was noted in the indexing to emphasize relationships.)

Other titles in the group are:

Training Methodology–Part I: Background Theory and Research

Training Methodology–Part III: Instructional Methods and Techniques

Training Methodology–Part IV: Audiovisual Theory, Aids, and Equipment

In a related group of classified, annotated, and indexed bibliographies on mental health inservice training, training concepts are highlighted in annotations and indexing. The group consists of three publications:

Annotated Bibliography on Inservice Training for Key Professionals in Community Mental Health

Annotated Bibliography on Inservice Training for Allied Professionals in Community Mental Health

Annotated Bibliography on Inservice Training in Mental Health for Staff in Residential Institutions

These seven publications were developed as a joint effort of the National Institute of Mental Health and the National Communicable Disease Center of the Health Services and Mental Health Administration, Public Health Service, U.S. Department of Health, Education, and Welfare. The project was administered by the National Institute of Mental Health's Community Mental Health Centers Staffing Branch of the Division of Mental Health Service Programs; the Continuing Education Branch of its Division of Manpower and Training; and the Training Methods Development Section of the National Communicable Disease Center's Training Program.

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Due to the nature of this series of publications, the amount of coordination and cooperation required for its development, and the range of skills employed in getting it published, the following persons should be recognized: Miss Patricia Rogers, Technical Information Specialist (Education), Training Methods Development Section, Training Program, National Communicable Disease Center–compiler and project supervisor; Dr. Ross Grumet, Psychiatrist, Region IV Mental Health Service–technical reviewer; Mr. Alfred R. Kinney, Jr., Chief, Training Methods Development Section, Training Program, National Communicable Disease Center–advisor; Mrs. Anne W. Morgan, Health Educator, Region IV Office of Comprehensive Health Planning–technical reviewer; Dr. Robert D. Quinn, Staff Psychologist, Community Mental Health Centers Staffing Branch, Division of Mental Health Service Programs, National Institute of Mental Health–NIMH coordinator; Dr. Dorothy Schroeder, Professor of Social Work, University of Michigan–consultant; Mrs. Betty S. Segal, Evaluation Specialist, Training Methods Development Section, Training Program, National Communicable Disease Center–technical reviewer; Miss Marguerite Termini, Associate Professor of Psychiatric Nursing, University of Delaware–consultant; Dr. Thomas G. Webster, Chief, Continuing Education Branch, Division of Manpower and Training, National Institute of Mental Health–adviser. Original annotations and abstracts were written by seven graduate students and technical assistants employed especially for the project. These individuals were: Miss Connie Benson, Miss Mary Lavinia Campbell, Miss Rosemary Franklin, Miss Sharon Grilz, Miss Gale Lawrence, Mr. Garrett McAinsh, and Mr. Stephen Von Allmen.

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(ASTD): "Training Research Abstracts," edited by Gerald H. Whitlock. IN **Training and Development Journal**, published by the American Society for Training and Development, January 1966 to date. Separately published by the Society before January 1966.

(ASW): **Abstracts for Social Workers.** Albany, N.Y.: National Association of Social Workers. Quarterly.

(ERIC 1): ERIC Clearinghouse on Adult Education. **Evening College Education: Basic Information Sources/1967**. Syracuse, N.Y.: Syracuse University, November 1967. 23 pp.

(ERIC 2): ERIC Clearinghouse on Adult Education. **Management Development No. 1: Current Information Sources.** Syracuse, N.Y.: Syracuse University, November 1967. 11 pp.

(ERIC 3): ERIC Clearinghouse on Adult Education. **Methods and Techniques of Adult Training, No. 1: Current Information Sources**. Syracuse, N.Y.: Syracuse University, December 1967. 15 pp.

(ERIC 4): ERIC Clearinghouse on Adult Education. **Training of Adult Education Personnel, No. 1: Current Information Sources.** Syracuse, N.Y.: Syracuse University, December 1967. 22 pp.

(HumRRO): Smith, Robert G., Jr. **An Annotated Bibliography on the Design of Instructional Systems** (Technical Report 67-5). Alexandria, Va.: The George Washington University, Human Resources Research Office, May 1967. 132 pp.

(USCSC 1): U.S. Civil Service Commission Library. **Personnel Literature.** Washington, D.C.: The Library. Monthly.

(USCSC 2): U.S. Civil Service Commission Library. **Bibliography of Bibliographies in Personnel Administration** (Personnel Bibliography Series Number 9). Washington, D.C.: The Library, n.d. 62 pp.

(USCSC 3): U.S. Civil Service Commission Library. **Planning, Administration, and Evaluation of Executive Development Programs** (Personnel Bibliography Series Number 4). Washington, D.C.: The Library, June 1961. 64 pp.

(USCSC 4): U.S. Civil Service Commission Library. **Planning, Organizing and Evaluating Training Programs** (Personnel Bibliography Series Number 18). Washington, D.C.: The Library, January 1966. 87 pp.

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LEARNING THEORY APPLIED TO INSTRUCTION

ADAMS, JACK D. Part trainers. IN Finch, Glen (ed.). **Educational and training media: a symposium** (Publ. no. 789). Washington, D.C.: National Research Council, 1960. pp. 129-149.

The effective design and use of part trainers is in an applied aspect of the area of psychology we know as part-whole transfer of training. Part-whole training has received only a moderate amount of attention, the motivations of researchers in this area being of two traditional kinds: (1) basic, pure research aimed at understanding how component skills fit together in the complex whole skill, and (2) applied science. Examination of research literature suggests that these two have not produced very much; our knowledge in this area is often controversial. This paper surveys the issues and findings to see what tentative generalizations are possible. Data and several figures give explanations and conclusions about cockpit procedures trainers. Listed are some tentative principles for part trainers: (1) they should be used whenever part-training, plus the added integrative whole-task practice required to learn the interaction among the parts, costs less than whole-task practice to achieve a criterion of proficiency; (2) they can be used unequivocally for response sequences which do not have to be performed in a concurrent, time-shared relationship with the responses in the whole task; (3) they may be effective for the maintenance of proficiency in procedural response sequences which are performed concurrently with continuous responses; and (4) they, being so much simpler than the whole task, are less difficult and yield measures of response proficiency which are spuriously high. **(1)**

BASS, BERNARD M. and JAMES A. VAUGHAN. **The psychology of learning for managers.** Chicago: American Foundation for Management Research, 1965. 109 pp.

This book attempts to summarize the most relevant findings from the behavioral sciences concerning the processes of learning and teaching in relation to management development. Contents are: Part One–(1) Basic Principles of Learning and Perception; (2) Complex Problem Solving and Transfer of Training; (3) Motivation and the Learning Process; (4) Conditions of Learning; Part Two–(1) Basic Educational Issues (What Is To Be Taught? How [illegible] the Content To Be Taught and By Whom? How Is Training To Be Evaluated?); (2) Recent Training Developments (Methods and Techniques); (3) A Design for a Viable Laboratory for Managers. References and a bibliography are included. **(2)**

BASS, BERNARD M. and JAMES A. VAUGHAN. **Training in industry, the management of learning** (Behavioral Science in Industry series). Belmont, Calif.: Wadsworth Publishing Company, 1966. 164 pp.

The principles of learning behavior derived through laboratory study can be extended to explain much of the complex learning required in industrial training programs. A review of the basic principles of human learning introduces four basic concepts–drive, stimulus, response, and reinforcer–and discusses classical and instrumental conditioning and higher forms of learning. The strategy of training involves three steps–(1) statements of the content of the training program, characteristics of the learner and his environment, the overall organizational climate, and the relation of training to company goals; (2) decisions about how and by whom the content will be taught including discussion of both current industrial training techniques and promising innovations and the extent to which they conform to the principles of learning; and (3) administration and evaluation of the training program. Training needs and the effectiveness of training programs must be assessed continuously in a carefully designed and executed research program. *(ERIC 3)* **(3)**

BELLOWS, ROGER. The management of learning, Parts I and II. **Personnel administration** 23:1, January-February 1960. pp. 21-28. 23:2, March-April 1960. pp. 4-10.

Part I, Theory and Practice, summarizes the heritage of learning theory, research, and practice in a convenient and understandable form for both the trainer and the learner. Part II, Efficiency and Economy, breaks down the management of learning into seven parts: motivate, get set to learn, reduce frustration, know results of learning, use present knowledge and skill, reduce forgetting, and expect to use results of learning. The article discusses each part and shows how it contributes to the overall management of learning. *(USCSC 3, edited)* **(4)**

BRUNER, JEROME S. **The process of education.** Cambridge, Mass.: Harvard University Press, 1961. 97 pp.

The Woods Hole Conference, where physicists, biologists, mathematicians, historians, educators, and psychologists came together to consider anew the nature of the learning process, its relevance to education, and points at which current curricular efforts have raised new questions about current conceptions of learning and teaching, was the basis of this report. It is essentially a consensual summary of that conference. The questions were: What shall be taught, when, and how?; What kinds of research and inquiry might further the growing effort in the design of curricula?; What are the implications of emphasizing the structure of a subject, be it mathematics or history, emphasizing it in a way that seeks to give a student as quickly as possible a sense of the fundamental ideas of discipline? Chapter titles are: Introduction; The Importance of Structure; Readiness for Learning; Intuitive and Analytic Thinking; Motives for Learning; and Aids to Teaching. An index is included. **(5)**

BRUNER, JEROME S. **Toward a theory of instruction.** Cambridge, Mass.: The Belknap Press of Harvard University Press, 1966. 176 pp.

This is a collection of essays written by the author during the decade preceding this publication. Though technical concerns underlie much of the discussion, the practical needs and problems of education form the primary rationale of the essays. The essay titles are: Patterns of Growth; Education as Social Invention; Notes on a Theory of Instruction; Man: A Course of Study (description of the structure of a course in social studies); Teaching a Native Language; The Will to Learn; On Coping and Defending; A Retrospect on Making and Judging. An index is included. **(6)**

CARPENTER, C. R. Boundaries of learning theories and mediators of learning. **AV communication review** 10:6, November-December 1962. pp. 295-306.

The relationship between learning theory and communication theory has significance for understanding and using new educational media correctly. Ten general principles can be derived from research: (1) stimulus materials which have the greatest similarity to the stimulus situation of the learned performance (criterion) will be the most effective; (2) the effects of stimulation depend heavily both on relevant previous learning and on activated motivation of the subjects for response; (3) for effective learning responses to occur, the amount of information, its complexity, and the rate of presentation should be gauged and produced to fall within the sensory-perceptual and comprehension spans of the learner; (4) stimulation to more than one sensory modality may increase learning by perceptual extension and reinforcement, provided the materials are organized to have cognative cohesion or continuity–where these conditions do not obtain, interferences may occur between combined stimulus channels and modes of stimuli; (5) repetition of stimuli and responses should have systematic variations; (6) mediated stimulus materials which are authentic, correct, and subject to validation by the learner increase the possibilities for significant learning and for their retention and reinforcement in real life situations; (7) correct responses to stimulus materials should be reinforced immediately; (8) carefully sequenced and tested materials presented in limited steps are most effective; (9) learning will be most effective when stimulus materials attract and sustain the attention of the learner, have personal interest for him, and provide inherent reinforcement of learning responses; and (10) principles derived from direct instruction by teachers are equally applicable in the use of instructional materials with new media. **(7)**

CASSELS, LOUIS. Eight steps to better training: you can benefit from new findings on the ways in which adults learn. **Nation's business** 49:3, March 1961. pp. 40-41, 90, 92-93.

Important facts that educational research has brought to light about the way in which adults learn are presented, along with practical suggestions on how to apply them in training programs in business. The eight steps to better training are discussed under these headings: (1) adults must want to learn; (2) adults will learn only what they feel a need to learn; (3) adults learn by doing; (4) adult learning centers on problems, and the problems must be realistic; (5) experience affects adult learning; (6) adults learn best in an informal environment; (7) a variety of methods should be used in teaching adults; and (8) adults want guidance, not grades. **(8)**

CLARK, JAMES V. **Education for the use of behavioral science.** Los Angeles: University of California, 1962. 91 pp.

Knowledge is not practice and vice versa. The teacher must assist the student to accomplish a fruitful interchange between knowledge and practice. Chapters are: Education for Practice; Today's Student and What He Is Being Asked to Do; The Students in the Classroom: Forces Which Constrain and Facilitate Learning; The Instructor in the Classroom: Forces Which Constrain and Facilitate Learning; Faculty Competence and Experience; A Mix of Courses for the Utilization of Knowledge; Research on Techniques for Developing Managerial Effectiveness; and On the Theory and Practice of Education for Practice. **(9)**

CRONBACH, LEE J. **Educational psychology.** 2nd edition. New York: Harcourt, Brace & World, 1963. 706 pp.

The principles of educational psychology are presented in this text designed for teachers and prospective teachers. Fourteen case descriptions, 141 illustrations, and 45 tables supplement textual material. Contents are: Part One, Psychology and School Problems–(1) How Psychology Contributes to Education; (2) What Teachers Are Trying to Accomplish; (3) An Introduction to the Learning Process; Part Two, Readiness and Its Development–(4) The Stream of Development; (5) Differences in Pupil Characteristics: Illustrative Cases; (6) Assessing Readiness: Personality and Motivation; (7) Assessing Readiness; Abilities; (8) The Interpretation and Application of Ability Tests; Part Three, Acquiring Skills, Ideas and Attitudes–(9) Skills; (10) Intellectual Development as a Transfer of Learning; (11) Improving Understanding and Thinking; (12) Communicating Knowledge; (13) Identification and the Learning of Attitudes; Part Four, Planning, Motivation, and Evaluation–(14) Purposes and Aspirations; (15) The Teacher as a Classroom Leader; (16) Judging Performance; Part Five, Emotional Learning–(17) Healthy Adjustment to Difficulties; (18) Character Development. A bibliography and author and subject indexes are included. **(10)**

CURRICULUM RESEARCH INSTITUTE. **Theories of instruction** (Papers from the ASCD Ninth Curriculum Research Institute, San Francisco, California, December 1-4, 1963; Washington, D.C., February 29-March 3, 1964). Edited by James B. Macdonald and Robert R. Leeper. Washington, D.C.: Association for Supervision and Curriculum Development, 1965. 118 pp.

The Curriculum Research Institute is cosponsored annually by the ASCD and the National Institute of Mental Health. "The six papers and the introductory and concluding statements included in this publication are indeed basic and significant additions to the literature on theories of instruction. . . . These papers reveal a high degree of maturity on the part of some of our leading scholars in the field of curriculum and instruction. I foresee great advancement in our understanding of the nature and character of instruction as a result of the efforts of these contributors" (from the Foreword, by Galen Saylor, President, 1965-66, ASCD). Papers presented are: Educational Models for Instruction – Introduction, by James B. Macdonald (distinctions are made between teaching, learning, instructional systems, and curriculum systems); Two Examplars of Teaching Method, by Harry S. Broudy (two teaching styles are compared: rhetorical instruction and the dialectical instruction of Socrates); On the Transmission of Information to Human Receivers, by Robert M. W. Travers (implications of research on human information processing for instruction, particularly the audiovisual aspects, are discussed); A Model of Instruction Based on Information System Concepts, by David G. Ryans (flow charts of the proposed model of instruction as interrelated information processing systems are presented and discussed); A Model of Teaching as Problem Solving, by N. A. Fattu; Instruction as Influence Toward Rule-Governed Behavior, by Elizabeth Steiner Maccia; The Language of the Classroom, Meanings Communicated in High School Teaching, by Arno A. Bellack; Theories of Instruction for What? A Projection, by Walcott H. Beatty (implications of instructional approaches emphasizing shaping and choice-making–the Rogers-Skinner debate–are compared). References accompany each paper. **(11)**

DePHILLIPS, FRANK A., WILLIAM M. BERLINER and JAMES J. CRIBBIN. Principles of learning and training–more than telling and showing. IN THEIR **Management of training programs.** Homewood, Ill.: Richard D. Irwin, 1960. pp. 67-99.

This chapter is concerned with five problems: (1) the definition and nature of learning; (2) the four types of learning; (3) modern learning theories; (4) the methods that three different theorists might use in solving the same instructional problem; (5) the learning principles that most psychologists find acceptable. The following topics are discussed in this connection: Learning and the Trainer; Four Basic Kinds of Learning (Sensori-Motor Learning, Conceptual Learning, Associational Learning, Attitudinal Learning); Myths about Learning; Learning Theories and Training; Some Modern Learning Theories; Three Solutions to the Same Problem (Behaviorism, Gestalt or Field Theories, Connectionism); Some Important Learning Principles. **(12)**

DETERLINE, WILLIAM A. Learning theory, teaching, and instructional technology. **AV communication review** 13:4, Winter 1965. pp. 405-411.

Learning theory as a body of knowledge has contributed relatively little to the world of education. The interface between learning theory and instruction has developed in a middle ground called "behavioral technology." The behavioral technologist can often systematically and reliably produce changes in behavior by using techniques for which the learning theorist as yet has no conceptual structure. Instructional technology is the application of behavioral technology to the systematic production of specified behaviors for instructional purposes. Programmed instruction has been the great spur to instructional technology. The programmer's involvement with behavioral objectives and behavioral analysis, with empirically determined size of presentation steps, with controlled student activity, with continuous confirmation or correction, and, where feasible, with self-pacing and adaptive sequencing, is an involvement with instructional interactions. Intuition should be replaced by technological rigor and reliable and predictable procedures. The trend in educational technology is toward multimedia instructional systems which are designed to realize the potentialities not only of programmed instruction, but also of the visual projector, the audio storage device, television, demonstrations, lectures, laboratory exercises, independent study, and textbooks. **(13)**

ERICKSEN, STANFORD C. Pitfalls and bridges between learning theory and the teaching technologies. **Journal of medical education** 39:3, March 1964. pp. 298-303.

Two pitfalls the teacher must avoid are (1) lacking a philosophical and theoretical frame of reference to guide teaching and (2) becoming overly enamored with a particular teaching technique. Principles of learning derived from experimental psychology provide the broad coverage necessary to understand the adaptive interaction between behavior and the environment. To transfer laboratory findings to the classroom requires active cooperation between subject-matter specialist (teacher) and research specialist. The learning psychologist's basic formulation is: learning = f (variables). The universe of variables is infinite and can be subdivided into environment variables, task variables, and organism variables or individual differences in learners. Experiments indicate the latter are by far the more important and that "a more powerful instructional impact will result when we release and give greater freedom to the individual difference variables, such as a student's value orientation, his memory, and the degree of meaningfulness he can attach to informational stimuli–lectures, books, films, slides, demonstrations, and the like." These student-linked factors are bridges opening up new resources for improving the basic quality of the educational process. A pitfall to be avoided is excessive involvement in research on task and environmental variables having secondary importance for learning: curricular changes, class size, informational input media, and teacher training. These are easy to manipulate and seem to attract a disproportionate amount of attention. A seminar series on learning theory for medical school faculty is outlined and discussed and the relationship between learning theory and practice is illustrated by discussion of characteristic features of programmed instruction and closed-circuit television in terms of how they utilize learning principles. Eleven references are cited. [Located too late for indexing.]

EURICH, ALVIN C. The psychological basis for more efficient teaching and learning. IN Traxler, Arthur (ed.). **Improving the efficiency and quality of learning** (Report of the twenty-sixth educational conference, New York City, October 26-27, 1961, held under the auspices of the Educational Records Bureau and the American Council on Education). Washington, D.C.: American Council on Education, 1962. pp. 13-20.

Despite our traditional preoccupation with teachers and teaching, excellence in teaching has not been sufficiently rewarded, nor appreciably enhanced by methodological expertise, nor even been found to be effectively measurable. This preoccupation has been misdirected, however, since the central concern of education is the learner and what he does in order to learn. The aim of American education is to develop the individual's capacity to the utmost: American psychology has made a major contribution toward this end by promoting a fuller understanding of student differences and what this means in the learning process. We now have the capacity by means of this understanding coupled with the use of new techniques and devices (television, teaching teams programmed learning, language laboratories, high-quality motion pictures, and flexible arrangements of instructional resources, personnel, and curricula), to adjust teaching to each student's needs. The use of these devices and techniques has demonstrated some basic psychological principles of teaching and learning, of which six of the most promising are formulated and discussed: (1) everything a student learns he must learn for himself; (2) regardless of how a teacher paces his instruction, each student will learn at his own rate; (3) students learn more when each step learned is immediately reinforced; (4) full rather than partial mastery of each step makes total learning more meaningful; (5) anything can be taught to any student at any age in an intellectually honest form, a principle emphasized by Jerome Bruner; and (6) when given the responsibility for his own learning, the student is more highly motivated and learns and retains more. **(14)**

FITTS, PAUL M. Factors in complex skill training. IN Glaser, Robert (ed.). **Training research and education.** Pittsburgh: University of Pittsburgh Press, 1962. pp. 179-199.

Skilled performance exhibits three characteristics: (1) spatial-temporal patterning; (2) continuous interaction of response processes with input and feedback processes; (3) learning. Specific task requirements change rapidly as a result of technological change. The kinds of skills that appear to be increasing in importance are ones in which the individual must keep track of many separate sources of information (stimuli), collate these separate inputs, and sort out effects produced by his own earlier actions from the effects produced by outside agents. Overpractice, training in subroutines, and the elimination of artificial limits to performance have special implications for training in complex skills. Overpractice produces a beneficial increase in resistance to stress, fatigue, and interference, and is especially important in tasks so designed that individuals are unable to use habit patterns that have been established by lifelong experience. Separation of a complex task into subroutines, and overpractice in these subroutines makes it easier for the subject to learn additional new aspects of a complex task. Conditions of a task which restrict the opportunity for further improvement should be removed to permit the subject to continue learning and improving his performance. **(15)**

FOLEY, JOHN D., JR. The learning process. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook.** New York: McGraw-Hill, 1967. pp. 34-54.

The chapter presents a behavioral scientist's point of view about training. It emphasizes the psychology of learning and a systematic approach to training. There are two main parts: (1) Nature of the Learning Process (Conditions for Learning, Factors Affecting Learning); and (2) Implications for Training (Determining Training Needs, Determining Training Content, Selecting Training Methods and Media, Evaluation of Training). "An effective training regimen, including the media used, must perform five basic functions: (1) stimulus generation; (2) stimulus presentation; (3) response acceptance; (4) response comparison; and (5) feedback presentation. When these five functions are adequately performed, the conditions required for learning to occur can be met. The exact way these functions are performed depends partly upon the level of proficiency of the trainees. What stimulus to present, responses to require, and feedback to give are determined by the training objectives. Training objectives for various segments of training are established by applying economic considerations to the total training problem . . . [which] is identified by first determining the behavioral requirements of the job or task by means of careful analysis. From these requirements are subtracted the capabilities already possessed by the trainees before they enter training. The effectiveness of the training is evaluated using the achievement test concept, taking necessary steps to promote the validity and reliability of the measures" (from chapter summary). A brief bibliography is included. **(16)**

GAGNÉ, ROBERT M. **The conditions of learning.** New York: Holt, Rinehart & Winston, 1965. 308 pp.

Learning is a change in human disposition or capability which can be retained and which is not simply ascribable to the process of growth. There are a number of generalizations about the conditions of learning that are useful in designing better education. There are eight distinguishable classes of performance change (learning) that may be described as the conditions of learning: (1) signal learning; (2) stimulus-response learning; (3) chaining; (4) verbal association; (5) multiple discrimination learning; (6) concept learning; (7) principle learning; and (8) problem-solving. The question that should be asked when designing instruction is, "What kind of capability is to be learned?" The book includes a section on each of the eight classes of learning. There are also chapters entitled: Learning and the Content of Instruction (Some Learning Structures, Learning and Instructional Sequences); The Motivation and Control of Learning (Motivation for Learning, The External Events of Instruction, The Conditions of Transfer); Learning Decisions in Education (The Educational System, Decisions That Affect Planning for Learning, Decisions Concerning Instruction, Priority in Educational Decisions); and Resources for Learning (The Instructional Situation, Media for Instruction, Modes of Instruction). **(17)**

GAGNÉ, ROBERT M. Resources for learning. IN HIS **The conditions of learning.** New York: Holt, Rinehart & Winston, 1965. pp. 267-296.

The functions that the components of the instructional situation must perform are described: (1) presenting the stimulus, (2) directing attention and other learner activities, (3) providing a model for terminal performance, (4) furnishing external prompts, (5) guiding the direction of thinking, (6) inducing transfer of knowledge, (7) assessing learning attainments, and (8) providing feedback. Also discussed is which of these functions each of the following components or instructional media is able to perform: objects for instruction, demonstration, oral communication by the teacher, printed language media, pictures, motion pictures and television, teaching machines; and the arrangement of the different media into the following instructional modes: the tutoring session, the lecture, the recitation class, the discussion class, the laboratory, and homework. It is stressed that the instruction designer should not restrict himself to the conventional modes of instruction but should explore novel forms of media combination and organization in order to match the requirements of the conditions of learning with the available media and their characteristics. There are 12 references. **(18)**

GLASER, ROBERT. Psychological bases for instructional design. **AV communication review** 14:4, Winter 1966. pp. 433-449.

The framework in which the psychologist-instructional designer could translate the ever-expanding scientific knowledge of teaching and learning into educational practice is discussed. Four distinct processes are involved and are analyzed and described in detail. The findings of prominent authorities in the field of the psychology of learning are used in support of the discussion. The processes are identified and discussed as follows: (1) analyzing the characteristics of subject matter competence (the rational and empirical analysis of subject-matter tasks); (2) diagnosing preinstructional behavior (investigating the relationships between individual difference variables and learning variables and constructing teaching systems for the accommodation of education to individual differences); (3) carrying out the instructional process (conditions influencing instruction: sequencing, stimulus and response factors, amount of practice, response contingencies–errors and correction, response contingencies–effective reinforcers); and (4) measuring learning outcomes. References are included. **(19)**

GLASER, ROBERT (ed.). Psychology and instructional technology. IN HIS **Training research and education.** Pittsburgh: University of Pittsburgh Press, 1962. pp. 1-30.

The purpose of an educational system is to create conditions that will cause new or modified student behavior, so training and education should be based on research findings in psychological science. Training and education are two aspects of the teaching process. The training component refers to teaching students to perform similar or uniform behavior; the educational component refers to developing individual differences. "Instructional process" includes general operations with which both training and education are concerned. Components of the instructional process are (1) instructional goals; (2) entering behavior; (3) instructional procedures; (4) performance assessment; and (5) research and development logistics. Instructional procedures should include attention to the guidance of learning, readiness, reinforcement, interference and transfer, practice and review, and motivation. **(20)**

GUTHERIE, JOHN T. Expository instruction versus a discovery method. **Journal of educational psychology**, vol. 58, 1967. pp. 16-30.

The idea that discovery learning facilitates transfer was tested. Methods of instruction were compared on the basis of several criteria of retention and transfer. It was hypothesized that instruction with rules and examples would facilitate retention but not transfer, and that training with only examples would facilitate transfer, but not retention. Seventy-two subjects were taught a symbol-deciphering task using one of four instruction methods: Rule-Example, Example-Rule, Example, and No Training. The conclusion based on results was that the discovery method appears to facilitate transfer but not retention; expository instruction facilitates retention, but impedes remote transfer. **(21)**

HOLDING, D. H. **Principles of training.** London: Pergamon Press, 1965. 156 pp.

Training has two limitations: (1) no codified system of principles of training, and (2) no training for the trainer. A new approach to educational psychology is needed to direct into educational thought not merely laboratory findings but analytical insight into perceptual, operational, and communicative processes. The conditions for applying psychological findings are demonstrated. An awareness of experimental findings must be paralleled by competence in analyzing tasks to determine how and where particular principles may be applied. By considering a wide sample of experimental data, this book reveals the extent of the problem of analysis. An experimental finding represents a particular, limited truth which has more substance than mere opinion. It is a statement whose terms have precise empirical meaning, because it has been demonstrated in defined physical conditions. **(22)**

HUNERYAGER, S. G. The psychological basis of effective training. **Training directors journal** 18:6, June 1964. pp. 3-7.

The article stresses the psychological basis of training and reviews psychological conditions for effective training such as training group concept, importance of organizational environment, and need for ego-involvement of the trainees. It emphasizes the fundamental role of the trainer as a controlling factor. *(USCSC 4, edited)* **(23)**

LANYON, RICHARD I. and MILTON M. SCHWARTZ. Psychological learning theory: application to adult education. **Adult education** 17:1, Autumn 1966. pp. 12-18.

The purpose of the article is to examine traditional learning theory and research with a view toward delineating those laws and principles which have potential relevance for education and to summarize some of the work that has been done in applying these principles. There are four major sections In the first section, some of the major thinking and research of scholars in the field of animal learning is reviewed, and its applicability to human learning is discussed. Major findings in human verbal learning research are examined in the second section. The third section summarizes the existing applications of these principles to education. Additional applications of the principles to regular classroom situations are discussed in the final section. References are included. **(24)**

LUNDGREN, HENRY CLAY. **Educational psychology in the classroom.** New York: John Wiley & Sons 1956. 574 pp.

Educational psychology is psychology applied to the teaching-learning situation; it attempts to help the student apply both the understanding and the method of psychology to problems encountered in teaching-learning situations. This book is aimed at helping students know and understand themselves better both as persons and as teachers and to encourage them to adopt a "scientific point of view" with regard to the data in their professional lives. Finally, it is to aid the readers in gaining a better understanding of their roles as teacher-psychologists, or artists and scientists in the field of human relations so that the inevitable, frustrating experience of the classroom will not lead to cynicism, apathy, and discouragement but to study, understanding, learning, professional growth, and an increased interest in the psychological problems of education. Chapters include: (1) Introduction to Educational Psychology; (2) Why Learners Behave as They Do; (3) The Growth and Maturity of the Learner; (4) The Learner and His Family; (5) The Learner in His Group; (6) Emotional Health and Problem Behavior; (7) Popular Beliefs About Learning; (8) Psychological Concepts of the Learning Process; (9) Intellectual and Non-Intellectual Factors in the Learning Process; (10) Teacher-Centered Approaches to the Learning Situation; (11) Learner-Centered Approaches to the Learning Situation; (12) Discipline and the Learning Situation; (13) Learning Through Group Methods; (14) Evaluation of Learning: The Teacher Role; (15) Evaluation of Learning: Standardized Testing; (16) Learners Who Need Special Help; (17) Guidance Services–Individualized Help for the Learner; and (18) The Psychology of Being a Teacher. **(25)**

MAGER, ROBERT F. **Developing attitude toward learning.** Palo Alto, Calif.: Fearon Publishers, 1968. 104 pp.

"One of the important goals of teaching is to prepare the student to *use* the skills and knowledge he has learned and to prepare him to *learn more* about the subjects he has been taught. One way of reaching this goal is to send the student away from the learning experience with a tendency to approach, rather than avoid, the subject of study. . . . This book is designed to help you achieve this objective." In Part I, Where Am I Going?, chapters 1, 2, and 3 discuss and illustrate how favorable attitudes, approach tendencies, and the inclination to use that which is learned are related and how achievement of objectives involves influencing the tendency approach. Part II, How Shall I Get There?, contains chapters entitled: (4) Recognizing Approach; (5) Sources of Influences; (6) Conditions and Consequences; (7) Positives and Aversives (examples of aversives–pain, fear and anxiety, frustration, humiliation and embarrassment, boredom, physical discomfort–and positives are cited); (8) Modeling (learning by imitation). Part III, How Will I Know I've Arrived?, contains chapters (9) Evaluating Results, and (10), Improving Results. Selected references on behavior modification and contingency management, from which the procedures described are derived, are appended, as well as additional references on procedures for measuring approach tendency or attitude. **(26)**

McGHEE, WILLIAM. Are we using what we know about training?–learning theory and training. **Personnel psychology** 11:1, Spring 1958. pp. 1-12.

Several general statements and their implications for industrial training are discussed. The statements are (1) the learner has a goal or goals; (2) the learner makes a response; (3) the learner's responses are limited by his past responses and abilities, his interpretation of the goal situation, and the feedback from his responses; and (4) the learner has achieved his goal, that is, he has learned. *(HumRRO, edited)* **(27)**

McGEHEE, WILLIAM and PAUL W. THAYER. Learning and industrial training, Parts I and II. IN THEIR **Training in business and industry.** New York: John Wiley & Sons, 1961. pp. 126-183.

In two succeeding chapters the authors discuss the importance of learning theory and the principles of learning for industrial training. In Part I the following topics are discussed: Learning Theory and Industrial Training: The Nature of Learning (Learning and Performance); Motivation (Learning and Goal Orientation, Motivation Defined, Conflict of Motives, Reinforcement in Terms of the Perceptions of the Individual, Getting the Trainee to Recognize the Need for Training, Development of Intrinsic Task Interests); Practice and the Conditions of Practice. Topics discussed in Part II are: Conditions of Practice (Massed vs. Spaced Practice, Knowledge of Results, Reward and Punishment, Whole vs. Part Learning, Meaningfulness, Guidance); Individual Differences; The Nature of Materials to be Learned

(Problem Solving, Attitudes); The Learning and Transfer Problem (Definitional or Real?, Identical Elements, Concepts, Overlearning); The Need for Systematic Research in the Psychology of Learning in Industrial and Business Situations; A Way of Thinking about Learning and Industrial Training. (28)

MILLER GEORGE E. (ed.), HAROLD P. GRASER, STEPHEN ABRAHAMSON, ROBERT S. HARNACK, IRA S. COHEN and ADELLE LAND. **Teaching and learning in medical school.** Cambridge, Mass.: Harvard University Press, 1962. 304 pp.

The book is an outgrowth of five years of operation of the Project in Medical Education at the University of Buffalo. (Nearly 100 medical faculty members representing most of the major basic and clinical disciplines and a score of medical schools participated in activities of the project.) It is intended as a source book for those who want to know more about ways in which contemporary concepts of teaching and learning might be put to use in a medical school. The material is divided into four major sections: (I) The Medical Student (The Problem of Selection; The Student and the School); (II) The Process of Learning (Background and Theory; The Student Learns; The Teacher Teaches); (III) The Tools of Instruction (The Problems of Instruction; The Objectives of Medical Education; Basic Techniques of Instruction; More Techniques of Instruction; Materials of Instruction; Improving the Program of Instruction); and (IV) The Evaluation of Learning (The Problems of Evaluation; Techniques for Measuring Knowledge; Techniques for Measuring Performance; Techniques for Measuring Attitudes; Other Measuring Techniques; Grades and Grading). Suggested readings and an index are included. **(29)**

MILLER, HARRY L. Some crucial conditions for learning. IN HIS **Teaching and learning in adult education.** New York: Macmillan, 1964. pp. 33-54.

The specific art of inducing change in humans is discussed in this chapter. Cognitive behavior, as opposed to skills of physical action, is concentrated on, and is defined as the individual's response to the flow of information coming to him through his senses, how he selects from the flow those items to which he pays attention, how he applies meaning to it, and how he manipulates it. The following six conditions for learning are postulated and described: (1) the student must be adequately motivated to change behavior; (2) the student must be aware of the inadequacy of his present behavior; (3) the student must have a clear picture of the behavior which he is required to adopt; (4) the student must have opportunities to practice the appropriate behavior; (5) the student must get reinforcement of the correct behavior; and (6) the student must have available a sequence of appropriate materials. **(30)**

MOSEL, JAMES N. How to feed back performance results to trainees. **Training directors journal** 12:2, February 1958. pp. 37-46.

As knowledge of performance increases, learning increases in both rate and level. The process of personnel training involves "input" (showing, telling, explaining), "output" (the trainee's response), and "feedback" (letting the trainee know about his performance). Knowledge of expected performance helps a trainee to learn in two ways: it tells him what he should learn; it motivates him to continue learning, particularly in the later stages of practice. Knowledge of performance must be supplied with care at both extremes of the proficiency range. There can be little effect when proficiency is near the maximum possible, and increased knowledge of poor performance can decrease motivation. Knowledge of performance is effective only if the trainee is given specific nonredundant information as to what to do as well as what not to do. The correct response should be clearly communicated by demonstration as soon as possible after the trainee's own performance so he can make a comparison. The manner in which feedback is given is important, because it can affect the trainee's concept of himself. Research suggests that praise and reproof as feedback can be ranked (in decreasing order of effectiveness) in this way: public praise, private praise, private reproof, public reproof **(31)**

MOSEL, JAMES N. The learning process. **Journal of medical education** 39:5, May 1964. pp. 485-496.

The basic problem of applying the large number of principles or laws of learning that have emerged from psychological experiments to the actual teaching situation in medical education is discussed. The major problem is seen in the fact that one must deal with human behavior in larger, more global chunks than the principles allow. Accordingly, a new approach to the control of complex learning in practical situations has been developed. It is called the "psychotechnology of learning" in contrast to the "psychology of learning." It is concerned not with the basic underlying processes of learning, but rather with the engineering or control of learning so that it may better serve human ends. An examination of a set of "operations rules" found to be useful in medical instruction is offered. The rules are mentioned in rough chronological and logical order of their application under the following headings: Specification of What Must Be Learned–Discriminate Between "Kernels" and "Transformations"; Componential Analysis; Sequential Analysis; Memory and Organization;

Passive Exposure vs. Active Involvement; Supply programmed Feedback. A brief bibliography is included. **(32)**

MURSELL, JAMES L. **Successful teaching; its psychological principles.** 2nd edition. New York: McGraw-Hill, 1954. 338 pp.

Teaching is the organization of meaningful learning. It involves six principles discussed in specific sections and interrelated throughout the book: context, focalization, socialization, individualization, sequence, and evaluation. Chapters and selected selections are: (1) Successful Teaching: Its Meaning (the criterion, the situation and its challenge); (2) Successful Teaching: Its Problems (teaching as organization; three applications–home study, class size, teacher leadership; the attempt to improve teaching); (3) Successful Teaching–Its Orientation: Controlling Approach (meaningful learning, what is meaningful learning, why teaching must emphasize meaning); (4) Successful Teaching–Its Orientation: Specific Emphases (the pattern of meaningful learning, learning is purposive, learning as exploration and study, achievement as understanding, good learning transfers); (5) The Principle of Context and the Organization of Learning; (6) The Principle of Context and the Appraisal of Teaching (hierarchy of applications, the six levels, administrative implications); (7) The Principle of Focus and the Organization of Learning; (8) The Principle of Focalization and the Appraisal of Teaching; (9) The Principle of Socialization and the Organization of Learning; (10) The Principle of Socialization and the Appraisal of Teaching; (11) The Principle of Individualization and the Organization of Learning; (12) The Principle of Individualization and the Appraisal of Teaching; (13) The Principle of Sequence and the Organization of Learning; (14) The Principle of Sequence and the Appraisal of Teaching; (15) The Principle of Evaluation and the Organization of Learning; (16) The Principle of Evaluation and the Appraisal of Teaching; (17) Synthesis and Application of the Principles of Teaching (the interrelationship of principles; the analysis of proposal, methods, and described situations, the observation of teaching; lesson planning; thinking and motivation). There is an index. **(33)**

NAYLOR, JAMES C. **Parameters affecting the relative efficiency of part and whole training methods: a review of the literature....** (Technical report: NAVTRADEVCEN 950-1). Port Washington, N.Y.: U.S. Department of the Navy, Naval Training Device Center, 1962. 34 pp.

The report reviews research on learning methods dependent on training by components of a task and by the entire task. It identifies principles most useful for training and presents conclusions concerning the types of methods which seem to be applicable. *(USCSC 4, edited)* **(34)**

PROCTOR, JOHN H. and WILLIAM M. THORNTON. The learning process. IN THEIR **Training: a handbook for line managers.** New York: American Management Association, 1961. pp. 43-55.

Training programs can generally be grouped into three broad categories: developing manual skills, transmitting information or knowledge, and modifying attitudes. The goal in industrial training is to bring each trainee up to or beyond an accepted standard of performance with a minimum expenditure of money. The measure of any training program, therefore, is the amount of change for the better that takes place as a result of training and the amount of learning that occurs in relation to established standards. The learning process is discussed in this chapter under the headings: The Nature of Learning; Principles of Effective Learning; Capacity to Learn; Transfer of Training; Motivation and Learning; Group Dynamics; Knowledge of Results; Systematic Learning; Scheduling Training Sessions; Material to Be Learned; Memory and Forgetting. **(35)**

SIEGEL, LAWRENCE (ed.). **Instruction: some contemporary viewpoints.** San Francisco: Chandler Publishing Company, 1967. 376 pp.

Designed to serve both reference and text objectives, the book is addressed to those who are professionally concerned with learning in formal instructional settings, and to graduate students in certain areas of psychology and education. The purpose of the book is to present a sample of contemporary theoretical formulations of formal education each written by the person responsible for that formulation. Contents are: Part I, Introduction–(1) An Overview of Historical Formulations, by J. M. Hedegard; (2) An Overview of Contemporary Formulations, by Lawrence Siegel; Part II, Formulations Emphasizing Teacher Behavior–(3) The Facilitation of Significant Learning, by C. R. Rogers; (4) Cognitive Models of Learning and Instruction, by A. D. Woodruff; (5) Teacher Behavior in the Classroom Context, by B. J. Biddle and R. S. Adams; Part III, Formulations Emphasizing Learner Behavior–(6) The Zigzag Curve of Learning, by S. C. Ericksen; (7) A Behavioristic Analysis of Instruction, by J. C. Jahnke; (8) A Cognitive-Structure Theory of School Learning, by D. P. Ausubel; Part IV, Integrative Formulations–(9) The Instructional Gestalt, by Lawrence Siegel and Lila Corkland Siegel; (10) Instruction and the Conditions of Learning, by R. M. Gagné; Part V, Summation–(11) Integration and Reactions, by Lawrence Siegel. References and an index are included. **(36)**

SILVERMAN, ROBERT E. Theories and models and their utility. **Educational technology** 7:19, October 15, 1967. pp. 1-7.

The purpose of the article is to contribute to the discussion of the relation between theories of learning and systematic views of teaching in two ways: (1) by clarifying the distinction between theories of learning and theories of teaching, and (2) by recommending the use of models rather than theories at this stage in the development of educational technology. Theories of learning are concerned with the "how" of learning; theories of teaching, using theory in the formal sense, do not exist in any number. A theory of teaching may derive its concepts and its methodological approach from a theory of learning. The best way to proceed in developing a theory of teaching is to begin with what is known about learning in the laboratory and in the classroom by adopting a model derived from a theory of learning and/or from systematic approaches to the study of learning in the laboratory. The relationship between the laboratory and the classroom may be improved by the use of models or modes of representation. Types of models are discussed. References are included. **(37)**

SKINNER, B. F. The science of learning and the art of teaching. **Harvard educational review**, vol. 24, Spring 1954. pp. 86-97.

The most serious shortcoming of current classroom methods is the relative infrequency of reinforcement. Through new techniques, however, reinforcement can be manipulated with considerable precision. An inexpensive mechanical device solves most of the principal problems in the teaching of mathematics. This small box has a window on top; through this window can be seen a question or problem printed on paper tape. A new problem moves into the window when a right answer is produced. The important features of this device are immediate reinforcement–for the right answer; manipulation of the device provides enough reinforcement to keep an average pupil at work for a suitable period; a teacher can supervise an entire class that is working with such devices, yet each child can progress at his own rate; after an absence, a pupil can pick up where he left off; gifted children, advancing rapidly, can be given special sets of problems to take them into interesting bypaths. There are objections to the device: the child is treated as an animal; mechanized instruction causes technological unemployment; and costs prohibit mechanizing our schools. But the mechanical device does give a genuine competence in basic skills; mechanized instruction does not necessarily shorten the time during which a teacher is in contact with the pupil, and it eliminates the teacher's more tiresome labors. If these mechanized teaching devices prove effective, our economy should afford them. **(38)**

SKINNER, B. F. **The technology of teaching**. New York: Appleton-Century-Crofts, 1968. 271 pp.

Eleven essays, seven of which either appeared in other publications or were presented at various conferences, embody the author's most recent thinking on the subject. Chapter titles are: (1) The Etymology of Teaching; (2) The Science of Learning and the Art of Teaching; (3) Teaching Machines; (4) The Technology of Teaching; (5) Why Teachers Fail; (6) Teaching Thinking; (7) The Motivation of the Student; (8) The Creative Student; (9) Discipline, Ethical Behavior, and Self-Control; (10) A Review of Teaching; and (11) The Behavior of the Establishment. An index is included.

(39)

STATON, THOMAS F. Applying the principles of learning. IN HIS **How to instruct successfully: modern teaching methods in adult education.** New York: McGraw-Hill, 1960. pp. 19-41.

The application of certain educational and psychological principles to the personnel training program is explained, and ways are suggested in which the instructor can apply these principles by means of specific techniques. Six principle steps necessary in every instructional activity are: (1) motivation of the trainee; (2) maintaining complete attention; (3) prompting mental activity (thinking); (4) getting a clear picture of the material to be learned; (5) developing comprehension of the significance, implications, and the practical application of the material being presented; (6) repetition of the five preceding steps until learning has taken place. Suggested readings are cited. **(40)**

SYMONDS, PERCIVAL M. **What education has to learn from psychology**. 3rd edition. New York: Columbia University Teachers College, Teachers College Press, 1965. 121 pp.

"Too many teachers are unaware of the psychological outcomes of their methods and consequently are unable to adapt to the very special demands of the individual child. But the master teacher meets new situations intelligently and creatively. It is my belief that psychology is part of the essential equipment of a master teacher. This series of articles is presented in hope that they will help many teachers to understand some of the principles of psychology that have an educational application which will lead to the ultimate improvement of educational practices" (from author's Foreword). The nine articles in this monograph are reprinted from *Teachers' College Record* from February 1955, October 1955, April 1956, March 1957, November 1957, October 1958, October 1959, November 1959, and March 1960. The titles indicate topics: (I) Motivation; (II) Reward; (III) Punishment; (IV) Learning Is Reacting; (V) Whole Versus Part Learning; (VI) Emotion and Learning; (VII) Transfer and Formal Discipline; (VIII) Individual Differences; (IX) Origins of Personality. **(41)**

TRAVERS, ROBERT M. W. A study of the relationship of psychological research to educational practice. IN Glaser, Robert (ed.). **Training research and education.** Pittsburgh: University of Pittsburgh Press, 1962. pp. 525-558.

A historical survey of the relationship of scientific research to educational practice suggests that the impact of scientific knowledge on training and educational procedure can be maximized if (1) behavioral scientists concentrate on the development of training equipment and devices which do not require major changes in the habit structure of teachers; and if (2) systematic work is undertaken to apply research findings to changing teacher behavior. Behavioral scientists must play an increasing role in the training of the educator. A large-scale programmatic research effort is required to provide the body of knowledge needed to effect educational change, and the responsible organization needs to have stability over a period of years in order for it to become productive. Considerable work must be done to apply research knowledge to the solution of practical problems. Within education at a grass roots level two ideas need to be emphasized: (1) very little is known about teaching processes, and what is being done now is probably very inefficient compared to the methods that will ultimately be evolved; and (2) research is a difficult enterprise which requires cooperation of experts and support at the professional level. **(42)**

TYLER, RALPH W. Conditions for effective learning. **NEA journal** 48:6, May 1957. pp. 47-49.

The following conditions for effective learning are described: (1) motivating the learner, (2) the learner finds his previous ways of reacting unsatisfactory, (3) guiding the learner's activities when the behavior is not simply acquired, (4) providing materials for the student to use in his efforts to learn, (5) providing time to carry on the desired behavior, (6) the learner gets satisfaction from his behavior, (7) sequential practice, (8) encouraging pupils to keep setting their sights higher and higher, (9) helping the learner get some means of judging his own performance. **(43)**

VERNER, COOLIE and THURMAN WHITE (eds.). **Adult learning (Adult education theory and method).** Washington, D.C.: Adult Education Association of the U.S.A., April 1965. 43 pp.

Aspects of adult learning are explored in five essays by four authors: (1) in Adult Learning, by Irving Lorge, an introductory overview of adult learning is presented, distinguishing between the different kinds of learning, examining the role of the teacher in the adult learning process, discussing the difference between learning performance and learning ability, presenting implications for teaching, pointing up difficulties presented by negative adult attitudes, and discussing the concept of satisfaction and reward in learning; (2) in Developing a Theory of Adult Learning, by Gale Jensen, objectives are posited and pursued: to identify and elaborate a set of principles which the adult educator can follow in building a functional theory of adult learning, and to identify and describe the kind of content or socio-psychological phenomenon to which such a theory must refer; (3) in Guideposts for Adult Instruction, by Gale Jensen, three objectives are pursued: to present an account of the basic dynamics of socio-psychological forces present in all formal adult instructional situations, to provide an identification and definition of the socio-psychological interactions which take place between adults during formal instruction and which determine the kind of learning that will result, and to present a set of principles for guiding or managing these socio-psychological interactions in ways which maximize the probabilities of achieving stipulated instructional objectives; (4) in The Teaching Learning Transaction, by Leland P. Bradford, the following seven areas are examined to develop an effective teaching-learning theory: what the learner brings to the transaction (in addition to ignorance and ability), what the teacher (helper) brings to the transaction (in addition to subject knowledge), the setting in which learning and change take place, the interaction process, the conditions necessary for learning and change, the maintenance of change and utilization of learning in the life of the learner, the establishment of the processes of continued learning; (5) in Mind and Emotion in Adult Education, by Max Birnbaum, two objectives are pursued: to state what appears to be the rationale for each of the positions, and to attempt to harmonize the two positions wherever possible. The role of cognition, the role of emotion and the irrational, the problem of values and/or attitudes, the role of the individual and the group, and the role of the teacher are discussed. **(44)**

WARREN, VIRGINIA B. (ed.). How do adults learn? IN HER **A treasury of techniques for teaching adults.** Washington, D.C.: National Association for Public School Adult Education, 1964. pp. 1-4.

Specific practical suggestions are given for applying knowledge derived from research and theory to the teaching of adults. Applications of learning laws (effect, primacy, exercise, disuse, intensity) are suggested, ways to control blocks to learning (boredom, confusion, irritation, and fear) are noted, and suggestions for applying good human relations practices are offered. **(45)**

WHITESELL, WILLIAM E. and JOSEPH T. PEITRUS. Training and learning process. **Personnel** 42:4, July-August 1965. pp. 45-50.

The article summarizes the prerequisites of an effective training program, identifies the principal steps involved in the learning process, and considers the implications of these steps for training. *(USCSC 4, edited)* **(46)**

WHITMORE, P. G. A rational analysis of the process of instruction. **IRE transactions on education** E-4:4, December 1961. pp. 135-144.

Instruction is a process for controlling student behavior to insure student learning, rather than a process for merely presenting information to students to learn in whatever way they can. Learning consists of behavioral changes that follow behavior. Thus, a program of instruction that will effectively control student learning must be based on an adequate description of the behaviors required of the student at specified points in the program. The preceding definitions of instruction and learning are applied to the problems of: (1) identifying what is to be learned, (2) determining the sequence for presenting instructional materials, and (3) designing instructional situations for accomplishing the desired learning. Evaluation is discussed in terms of: (1) determining the effectiveness of the instruction for accomplishing the desired learning, and (2) determining the effectiveness of the behaviors learned for producing adequate job performance. **(47)**

WOLFLE, DAEL. Training. IN Stevens, S. S. (ed.). **Handbook of experimental psychology.** New York: John Wiley & Sons, 1951. pp. 1297-1286.

The psychology of training is the applied psychology of learning. Six principles concerned with variables that can be manipulated under practical training conditions are: (1) knowledge of results; (2) avoidance of habit interference; (3) variety of practice materials; (4) methods used in training; (5) knowledge of principles involved; (6) effectiveness of guidance. Three problems in administering a training program that can be answered by psychological techniques are: determination of (1) what should be taught (by means of a job analysis that describes the task in terms of its psychological components); (2) what teaching aids can be usefully employed (audiovisual aids and synthetic trainers); (3) how long formal training should continue (based on a learning curve and performance records). Training research has two values: (1) it can increase the effectiveness of specific training programs; and (2) it can contribute quantitative information on the limits of each principle, its optimal conditions of application, and the nature of its interaction with others. **(48)**

LESSON PLANNING, COURSE DESIGN, CURRICULUM DEVELOPMENT

COREY, STEPHEN M. The nature of instruction. IN Lange, Phil C. (ed.). **Programmed instruction** (The sixty-sixth yearbook of the National Society for the Study of Education, Part II). Chicago: The National Society for the Study of Education, 1967. pp. 5-27.

This chapter attempts to clarify the concepts of instruction used generally throughout the yearbook. In this concept, instruction is differentiated from teaching as a generic term and from curricular and administrative planning as related to general activities. The major part is a description of the various operations that must be engaged in to provide instruction as here conceived: determination of objectives, analysis of instructional objectives, identifying the characteristics of the population to be instructed, evaluating evidence of the success of instruction, constructing the instructional environment, sequencing the units of instruction, and continuing instruction. The relationship between an instructional program and programmed instruction is briefly noted. The chapter concludes with a description of some generally agreed-upon characteristics of programmed instruction and a comment on the history of its development in the United States. **(49)**

ECKSTRAND, GORDON A. **Current status of the technology of training** (AMRL-TR-64-86). Wright-Patterson Air Force Base, Ohio: Air Force Systems Command, Aerospace Medical Research Laboratories, Behavioral Sciences Laboratory, September 1964. 29 pp. (Also paper read at meeting of American Psychological Association, Los Angeles, September 1964.)

"This report presents a brief overview of the current status of the technology of training. The processes involved in designing a training system are arbitrarily analyzed into the following three areas: (1) determining training requirements, (2) developing the training environment, and (3) measuring the results of training. In each of these areas, an attempt is made to summarize and evaluate the adequacy of our technology. In a final section of the report, certain areas of research which appear to be especially promising are discussed" (report abstract)—task classification, individualization of training, personnel system factors, and equipment design. The systems approach, objectives, media, programmed learning, and criterion-referenced measures are discussed in the report. There is a 49-item bibliography. **(50)**

ENELOW, ALLEN J. and LETA McKINNEY ADLER. Organization of postgraduate courses in psychiatry. **Archives of general psychiatry**, vol. 12, May 1965. pp. 433-437.

Four important elements in organizing and administering postgraduate courses to achieve the two goals of increasing participation of practicing physicians in courses and of giving participating physicians the maximum amount of useful information are discussed: (1) clearly defined teaching objectives; (2) carefully designed course methods to suit levels of participants (live presentations and discussions, observing interviews through one-way vision rooms or by closed-circuit television, interview practice with student critiques, student observation of a demonstration psychotherapy by the instructor in a one-way vision room, and supervised clinic experience); (3) careful attention to the training of instructors and to maintaining their motivation; and (4) close cooperation with the medical community. Recommendations regarding the location of the training, the selection of program director, adequate time and budget, and feedback of results of evaluative research conclude the article. Ten references are cited. [Located too late for indexing.]

ERAUT, MICHAEL R. An instructional systems approach to course development. **AV communication review** 15:1, Spring 1967. pp. 92-101.

A course is considered an instructional system having as components the learners, the instructor(s), the material(s), the machine(s), and the technicians. The input is the learners' initial knowledge, and the output is the learners' final knowledge. The purpose of course development is to design validated instruction that is guaranteed to convert any input meeting the input specifications to an output that meets the instructional system's output specifications. The output will normally be defined in terms of the standards of performance required for certain jobs or in terms of the entry requirements of the course that will follow. A validated instructional system may have to be revised several times before it finally meets the output specifications. The instructional system may be divided into several subsystems, each with its own input and output specifications, so that decisions about media and teaching techniques can be made at the subsystem level. When this is done, each subsystem is revised until it meets its output specifications; however, further revision may be required when the subsystems are recombined into the total system. Developing a course as an instructional system with subsystems and with specifications as to input and output has the advantages of letting the developer know when to stop revising and of letting the potential user know what to expect from students who complete the course; it makes it possible to prevent unprepared students from entering the course, to prevent students who already meet the terminal objectives from entering, and to provide individualized instruction by directing students only to those parts or subsystems they are deficient in. Seven references are included. **(51)**

GILBERT, THOMAS F. Mathetics: the technology of education. **Journal of mathetics** 1:1, January 1962. pp. 7-73.

B. F. Skinner's system of behavior analysis (reinforcement theory) is of sufficient maturity to serve as a foundation for a true technology of education. "Mathetics" is the systematic application of reinforcement theory (including motivation and stimulus control) to the analysis and reconstruction of those complex behavior repertories usually known as "subject-matter mastery," "knowledge," and "skill." Mathetics produces teaching materials that exceed the efficiency of lessons produced by any other method, including the best available programmed materials. The stages in the mathetics production process are: (1) prescription: a description of the behaviors that constitute mastery in some subject matter domain (synthetic repertory); (2) development of the domain theory: an extraction of the essential elements of the subject matter to be described in behavioral terms (analytic repertory); (3) characterization: an analysis of the behavior properties of the prescribed repertories and a description of the generalizations to be taught (plan of the lesson); (4) exercise design: a basic model with exercises arranged in a sequence consistent with a lesson plan developed from the characterization. This article is the first full explanation of the general structure of mathetics. It offers lengthy and specific descriptions of all four stages in the production process and includes a glossary of special terminology. **(52)**

GILPIN, JOHN. Design and evaluation of instructional systems. **AV communication review** 10:2, March-April 1962. pp. 75-84.

Programmed learning has not progressed as expected, because there have been few studies of it, because many of the existing studies have been poorly designed, and because the data from the remaining studies have not been mutually comparable. This article is concerned with solutions to the problem of research failing to provide mutually comparable data. Needed are, first, a general method of experimental attack that will deal directly and equally effectively with all educational methods; second, a meaningful, agreed-upon common denominator dependent variable; and third, baseline values of the dependent variable in standard situations. Since the characteristic that all instructional methods have in common is their intent to produce some effect in the students they are aimed at, a first step in constructing a more powerful methodological framework would be to adopt an ends-centered (objectives) approach. This approach requires that the goals of the instructional task be specified clearly so that both instructional materials and comprehensive and valid tests can be prepared from them. The purpose of testing should be to ascertain not which students have learned better than others, but which students learned what was specified. Not only must the goals of the instructional task be defined, but the relevant capabilities and incapabilities of the target student group must also be specified. With these specifications in hand, different approaches to meeting the goals can be developed and tested. Even so, there is no basis on which to compare two approaches, or systems, if both produce successful students. What is needed is a dependent variable that comprehends within one measure the most important features of system performance and that behaves as a continuous variable. One such variable is "time to complete instruction"; another is "cost of instruction." These are also the variables that are of prime interest once an instructional system is turning out successful students. For research purposes, it is suggested that time-to-criteria be adopted as the dependent variable. For commercial purposes, the cost per successful student will be a more relevant variable for comparing different instructional systems. If research based on the approach suggested and using these dependent variables is conducted and published, then baseline data on these variables will gradually accumulate. Then the identification of the important variables in instructional systems will become possible. **(53)**

HERBERT, JOHN. **A system for analyzing lessons.** New York: Columbia University, Teachers College Press, 1967. 131 pp.

Proposed is a system for describing teaching-by-giving-lessons as distinguished from other ways of teaching. Teaching-by-giving-lessons is defined as an instructional relationship between students and a teacher who controls all of the six essential components of a lesson: media, grouping and location, lesson form, subject matter, subject-matter form, and influence techniques. All the components are defined and discussed, and one, lesson form, is examined at great length in terms of ideal form and of actual form as discovered by charting real lessons. The charting system is described and illustrated using the transcription of a lesson. Possible uses of lesson analysis are discussed in a final chapter. A selected bibliography and an index are included. **(54)**

HOEHN, ARTHUR J. **The development of training programs for first enlistment personnel in electronics maintenance MOS's, II. How to analyze performance objectives to determine training content** (Job Train II). Alexandria, Va.: The George Washington University, Human Resources Research Office, January 1960. 78 pp.

Training content is defined as "the concepts, skills, information, etc. which the trainees will be taught to enable them to meet specified training standards in their MOS [military occupational specialty]." Assumptions, concepts, and principles related to the analysis of performance requirements are presented, and procedures for applying these to the derivation of training content are described. Examples from the MOS of Field Carrier Equipment Repairman are used to illustrate the procedures. **(55)**

KNOWLES, MALCOLM S. Program planning for adults as learners. **Adult leadership** 15:8, February 1967. pp. 267-268, 278-279.

The principles and criteria to be applied to a particular conference (before which the paper was originally read) as an adult educational activity are described, these same principles and criteria being designed to apply more broadly to any program that has as its purpose the growth and development of adults. The discussion of program planning is premised on the proposition that there is a unique technology of adult education which in turn is based on certain assumptions about the unique characteristics of adults as learners. These characteristics are described, and their implications for the technology of adult education are suggested. Headings in this section are: (1) Self-Concept: Four Implications; (2) Accumulated Experience: Three Implications; (3) Readiness to Learn: Two Implications; (4) Time Perspective: Three Implications. The program planning process is outlined under the following seven headings: (1) The Creation of a Structure for Mutual Planning; (2) The Establishment of a Climate Conducive to Adult Learning; (3) The Self-Diagnosis of Needs for Learning; (4) The Formulation of Objectives; (5) The Development of a General Design; (6) The Selection and Execution of Techniques and Materials; (7) The Planning of Evaluation. A discussion of future developments in adult program planning concludes the article. **(56)**

KRUG, EDWARD A. **Curriculum planning**. Revised edition. New York: Harper & Brothers, 1957. 336 pp.

The rationale, techniques, and procedures of curriculum planning are presented, and planning practices and problems involved in making them an effective process are dealt with. Curriculum planning is defined as "the orderly study of and improvement of schooling in the light of objectives." The activities of curriculum planning are divided into five main groups: (1) identifying and stating educational objectives; (2) developing the all-school program; (3) teaching and learning; (4) providing curriculum guides; and (5) providing instructional aids and materials. The book is divided into 11 chapters: I, What It Means to Work on Curriculum (Identifiable Aspects of Curriculum Planning; Participants in Curriculum Planning; Summary); II, Preparing Statements on Educational Objectives (Ways of Getting Started; Ways of Stating Objectives; Summary); III, The Basis of Educational Objectives (Psychological Problems and Issues; Social Problems and Issues; Philosophical Problems and Issues; Summary); IV, The All-School Program (General Education in the All-School Program; Suggested Areas of General Objectives; Illustrative Questions on School Practices as Related to General Objectives; The Classroom Studies; Extra-Class Activities; Guidance; Work Experience; School and Community Service Projects; The School in Community; Summary); V, Curriculum Issues in Selected Instructional Fields (English; Mathematics; Social Studies; The Natural Sciences; Summary); VI, Teaching and Learning (The Problems of Defining Good Teaching; A Proposed Inventory of Skills in Teaching; Summary); VII, Curriculum Guides (Instructional Fields–Core, Common Learnings, or General Education Programs; Special Area Problems, Topics, or Themes; Other Phases of the School Program; Who Prepares Curriculum Guides; Summary); VIII, Resource Units as Aids to Teacher Planning (Definition and Nature of Resource Units; Structure and Content of Resource Units; Use of Resource Units; The Making of Resource Units; Summary); IX, Research Activities in Curriculum Planning (Nature and Scope–Surveys, Case Studies, Evaluation, Experimental Studies; Summary); X, Curriculum Planning in Local Schools and School Systems; XI, The Role of Curriculum Planning in Education: A Summary. **(57)**

LYNTON, ROLF P. and UDAI PAREEK. Designing the program. IN THEIR **Training for development**. Homewood, Ill.: Richard D. Irwin, Inc. and the Dorsey Press, 1967. pp. 175-206.

The following are outlined as the five steps in designing a training program: (1) choosing a strategy or combination of strategies; (2) breaking down general training objectives into their knowledge, understanding, and skill components; matching these components with appropriate training methods, developing a list of events and specifying for each event its general and specific objectives, content, training methods, time, evaluation methods, review time, and person(s) responsible for the event; (3) determining roughly the total time and facilities required for the entire program by estimating the time and facilities required for meeting each objective and combining the subtotals; (4) deciding on the different packages in which the training could be offered and asking the organization to select one; (5) working detailed training events into training sequences and finally into the total program package. The outline of the program sequences and themes is discussed in terms of (1) phasing the program to accord with the learning process, (2) relating the program to prevailing expectations, (3) building the training group, (4) incorporating the grand themes of training for development, and (5) striving for consistency in training. Composing the detailed syllabus is discussed in terms of the need for (1) alternating stimulation and reflection, (2) alternating personal involvement and safe distance, (3) alternating talking about something and practicing it, and (4) alternating individual events and group events. Three final aspects of training design are discussed. These are: building-in flexibility, evaluating the progress of training during the program, and developing training schedules and timetables. **(58)**

LYNTON, ROLF P. and UDAI PAREEK. Training strategy. IN THEIR **Training for development.** Homewood, Ill.: Richard D. Irwin, Inc. and the Dorsey Press, 1967. pp. 28-54.

Four areas of consideration in planning for training are specified. Under external strategies, the establishment of training goals and the definition of training specifications are discussed. Under internal strategies, the organization of the training inputs is discussed and the improvement of the training institution is touched on. **(59)**

MAGER, ROBERT F. On the sequencing of instructional content. **Psychological reports,** vol. 9, 1961. pp. 405-413.

There are several rationales for sequencing instructional material. Sequencing can be accomplished by (1) using some sort of chronological order; (2) ordering "natural units"; (3) carrying the learner from the general to the specific; (4) carrying the learner from the specific to the general; or (5) using one of several other possible schemes. Whatever sequencing criterion is used, it must be logical and meaningful to the learner. The purpose of the experiment reported was to determine whether a learner-generated sequence would be similar to an instructor-generated sequence and whether or not there was any commonality among sequences generated by independent learners. Results indicate considerable commonality among independently generated content sequences. The learner-generated sequence bears little resemblance to that used by most instructors. Whereas the learner would proceed from a simple whole to a more complex whole, traditional sequences proceed from the part to the whole (from components to systems). Implications are that (1) the content sequence most meaningful to the learner is different from the sequence suggested by the instructor; (2) the learner's motivation increases as a function of the amount of control, or apparent control, he is allowed to exercise over the learning experience; and (3) if an adult learner is provided with behaviorally stated objectives and with control over his learning, he will reach the objectives by dovetailing what he needs to know with what he already knows. **(60)**

MAGER, ROBERT F. and KENNETH M. BEACH, JR. **Developing vocational instruction.** Palo Alto, Calif.: Fearon Publishers, 1967. 83 pp.

The steps involved in preparing instruction that can be demonstrated to facilitate learning are described. The procedure of systematic course development outlined is not specific to subject matter or vocation, and it applies to many academic as well as vocational and technical areas. After the Foreword by James D. Finn, the Preface by I. K. Davis, and the Introduction by the authors, chapter titles are: (1) Strategy of Instructional Development; (2) Job Description; (3) Task Analysis; (4) Target Population; (5) Course Objectives; (6) Course Prerequisites; (7) Measuring Instruments; (8) Types of Performance; (9) Selection of Instructional Procedures; (10) Sequencing Instructional Units; (11) Lesson Plan Development; (12) Improving Course Efficiency; (13) Improving Course Effectiveness; and (14) Sources of Instructional Materials. The last chapter was prepared by Desmond Wedberg and contains a comparison of coverage by four leading audiovisual textbooks; lists of publications on instructional techniques and procedures, instructional media, and programmed instruction; sources of vocational-technical instructional materials (various catalogs, indexes, guides, and lists organized by media); and periodicals and journals which emphasize instructional technology. Sample worksheets are included for illustration. **(61)**

MURSELL, JAMES L. The principle of sequence . . . IN HIS **Successful teaching: its psychological principles.** 2nd edition. New York: McGraw-Hill, 1954. pp. 209-243.

Learning, an experience that brings deeper insight and understanding or more certain control, should be organized around a central idea in a challenging and concrete setting that will enhance group morale and accommodate to individual contributions. Learning is a change from the crude to the discriminating, the concrete to the symbolic, the proximate control to the remote control. A sequence of learning must be meaningful, sequence is destroyed if information is not available as needed; learning is continuous, depending on purpose and emergence of meaning; assimilation rather than retention is to be encouraged. Preliminary preparation alone cannot produce suitable sequences because mental growth is not marked by definite stages. Sequence can, however, be approximated in the context of blocks (accumulations) of knowledge or skill; in the context of the requirements, prerequisites, and logical considerations that link the blocks; and in the context of relationship clarifiers such as introductions, previews, pretests, periodic reviews, and rearrangement of order as determined by trainee readiness. **(62)**

POPHAM, W. JAMES and EVA L. BAKER. **Perceived purpose** (filmstrip-tape program). Los Angeles: Vimcet Associates, 1967. Color 37 frames, 31 minutes.

The program is directed at teachers or prospective teachers and is meant to enable them to design instructional activities that would help the learner perceive the purpose underlying whatever he is studying. Four techniques are described: induction, deduction, exhortation, and extrinsic rewards. The three specific objectives of the program are: (1) when instructed to prepare a one-period lesson plan, the learner will include a greater number of "perceived purpose-type" activities after viewing the program than he included before exposure to the program; (2) given written descriptions of teachers engaging in various activities, the learner will be able to distinguish between teachers who are and are not promoting perceived purpose, and, if so, which of the four techniques is being used; and (3) given a general topic and class description, the learner will be able to write correct examples of each of the four perceived purpose procedures described in the program. The accompanying instructor's manual includes reports of validation studies on the program and related quiz questions and answers which may be used as pre- and post-tests. **(63)**

POPHAM, W. JAMES and EVA L. BAKER. **Systematic instructional decision making** (filmstrip-tape program). Los Angeles: Vimcet Associates, 1967. Color, 27 frames, 20 minutes.

The program describes a general instructional model that can be used by teachers in deciding (1) which instructional activities to include in a teaching sequence and (2) whether the instructional sequence was effective. Differences between the "teacher-artist" and "teacher-technician" conception of instruction are examined. The program is designed as an initial overview of a series of instructional programs for pre- and in-service teacher education and industrial and military instructor training when that series is used in an integrated training sequence. The accompanying instructor's manual includes a report on validation studies and appropriate quiz questions which may be used as pre- and post-tests. **(64)**

ROEBUCK, MARTYN. The application of programmed learning techniques to the organization of courses, with particular reference to courses on programmed learning. IN Unwin, Derick and John Leedham (eds.). **Aspects of educational technology**. London: Metheun & Company, Ltd., 1967. pp. 411-425.

Systems analysis, critical path analysis, and programming require a precise definition of objectives and an analysis of prerequisites. Courses should be dealt with in the same way. To design an instructional situation, you must define the objectives, analyze the objectives to determine the necessary learning structures, and decide on the conditions for motivation. All courses should be developed empirically through application of programmed learning techniques. The general objectives of a course in programmed learning are that the student become able to prepare a programmed sequence, evaluate a program's actual or probable effectiveness, and assess the usefulness of available machines, programs, and techniques. A full-time programmed learning course lasting one week is outlined. **(65)**

ROSE, HOMER C. Preparing courses of study and lesson plans. IN HIS **The instructor and his job**. American Technical Society, 1961. pp. 165-188. (Also in Rose, Homer C. **The development and supervision of training programs**. Chicago: American Technical Society, 1964.

A practical, illustrated guide to the title subjects is presented. The following topics are discussed: Naming the Course; Stating the Course's Objectives; Determining the Course's Specific Content; Arranging Units in Order They Will Be Taught; Purpose, Selection, and Use of Textbooks; Using Projects in Course of Study; Planning the Lessons; Typical Lesson Plan Elements; Sample Lesson Plans; Other Activities to Consider in Planning a Course of Study (field trips, special lectures and demonstrations, outside reading, semi-social activities). **(66)**

SCHOOL HEALTH EDUCATION STUDY. CURRICULUM DEVELOPMENT PROJECT. **Health education: a conceptual approach to curriculum design (Grades: kindergarten through twelve).** St. Paul, Minn.: 3M Education Press, 1967. 141 pp.

The project reported consisted of five essential steps: (1) a nationwide survey to determine the state of the field; (2) a statement of priorities, educational outcomes defined as behavioral objectives; (3) the development of three key concepts to serve as a framework, which are in turn broken down into ten concepts that serve as organizing elements for 31 subconcepts or substantive points; (4) the designing of instructional materials at four levels: lower elementary, upper elementary, junior high, and senior high; and (5) built-in plans for evaluation. The book is illustrated by pictorial and graphic material. Selected references (190) and resources are included. **(67)**

SILVERN, LEONARD C. **Fundamentals of teaching machine and programmed learning systems: course one.** Los Angeles: Education and Training Consultants, 1964. 629 pp.

This programmed course teaches programmed learning and teaching machine technology. It deals with systems and uses systems techniques in the instruction process. An *Administrative Factors Guide* provides the training director with detailed data concerning this course. Its chapter titles are: History and Philosophy of the Course, Course Development and Validation, Analysis of Tryout Data, and Factors Which Will Contribute to Course Success. A bibliography is included. Volume I of the Programmed Text contains units on: (1) Fundamentals of the Course, (2) Concepts of Human Performance, (3) Basic Analysis, (4) Job Analysis, (5) Performance Standards, (6) Course Outlining, and (7) Lesson Planning. Volume II continues with units on: (8) Learning Psychology, (9) Producing the Lesson, (10) Evaluating Transfer to Real-Life Situations, and (11) Evaluating Yourself in This Course. A programmed workbook includes a series of self-tests. This course is the first of nine planned courses which constitute the Programmer's Kit. The learner who satisfactorily completes this first course will be knowledgeable, though not a master, of the field of programmed learning. **(68)**

SILVERN, LEONARD C. **Textbook in methods of instruction.** Culver City, Calif.: Hughes Aircraft Company, 1957. 400 pp.

This illustrated text is designed specifically for use by engineering instructors as a guide to instructional techniques and to writing techniques for preparing curriculum materials. It is intended to enable the engineering instructor to organize and communicate his technical know-how about complex electronic systems to trainees in electronics courses at any level, and to enable him to evaluate accurately the results of his instruction. There are five chapters: (1) Basic Analysis (Logical and Psychological, Order and Organization, Analysis or Synthesis?, Techniques in Analyzing, Techniques in Synthesizing); (2) Vocational-Technical Adult Training (Principles of Training, Principles of Instruction, Work Experience, Adult Learning); (3) Curriculum Development (Formulating the Training Package, Training Objectives, Developing Course Outlines, Preparing Lesson Plans, Designing Learner's Material, Designing Laboratory Problems); (4) Training Devices (Training or Learning Devices?, Classroom Training Devices, Laboratory Training Devices, Simulators, Integrating Training Devices); and (5) Evaluating Training (Principles of Testing, Entrance Testing, Achievement Testing, Designing Written Tests, Designing Oral Tests, Designing Performance Tests). An index is included. **(69)**

SMITH, ROBERT G., JR. **An annotated bibliography on the design of instructional systems.** Alexandria, Va.: The George Washington University, Human Resources Research Office, 1967. 132 pp.

Presented as a supplement to *The Design of Instructional Systems* (November 1966), this bibliography contains 449 annotated entries. They are arranged under seven major headings: (1) Systems–General; (2) Training Systems; (3) Presentation of Knowledge; (4) Practice of Knowledge; (5) Practice of Performance; (6) Management of Students; and (7) Additional Material. An author index and "key-word-in-context" index are included. **(70)**

SMITH, ROBERT G., JR. **The design of instructional systems** (Technical report 66-18). Alexandria, Va.: The George Washington University, Human Resources Research Office, November 1966. 85 pp.

Prepared for the Department of the Army, this report presents a general account of one facet of the technology for developing effective training, that of designing instructional systems. The material is based on a survey of available literature, and drawn particularly from Human Resources Research Office experience and methodology in training research. The major sections of the report deal with (1) the instructional system as a concept, (2) the research evidence bearing on the major system functions, and (3) methods for designing and evaluating the system in terms of cost and effectiveness. Chapter and section headings further indicate contents: (1) What an Instructional System Is (A Model of an Instructional System; Instructional System Design); (2) The Practice of Performance (Practice of the Task; Knowledge of Results; Transfer of Training; Effective

Practice; Training Devices; The Role of the Instructor); (3) The Practice of Knowledge (Analysis of Knowledge; Factors Affecting Practice of Knowledge; Meaningfulness; Techniques for Practicing Knowledge—Basic Patterns . . ., Self-Instructional Techniques, Classroom Feedback Methods, Student-Coach Method, The Instructor); (4) The Presentation of Knowledge (The Role of Presentation; General Guidelines for Design of Presentations; Training Films; Instructional Television; Training Aids; Tape Recordings; Written Materials; The Live Instructor; Other Factors); (5) Management of Students (The Student—Aptitudes, Motivation, Previous Experience, General Implications; Reinforcement; Adjustment for Individual Differences—Ability Grouping; Recycling; Fixed Overall Length, Variable Time; Continuous Progress; Student-Controlled Learning; The Management of Reinforcement; Sequence of Instruction; Assuring Class Attendance); (6) Automation of Instruction (Automation and the Instructional System; Programmed Instruction and Automated Instruction; The Computer and Instructional Systems); Part II, A Guide to the Design and Evaluation of Instructional Systems—(7) The General System Plan (Constraints; The Sequence of Objectives; Management of Students; Quality Control; The Nature of the General System Plan); (8) Design of the Lesson (Identification of System Functions; Selection of System Methods and Components; Lesson Specification; Preliminary Test of the Lesson; The Lesson Plan); (9) Evaluation of the System (Measuring the Effectiveness of the System; Common System Faults; Cost and Effectiveness). There is a selected bibliography organized by relevance to specific chapters. An appendix contains a checklist for evaluating training. Illustrations include a model of an instructional system and sample lesson function charts for simple and complex tasks. **(71)**

STATON, THOMAS F. Planning for instruction. IN HIS **How to instruct successfully: modern teaching methods in adult education.** New York: McGraw-Hill, 1960. pp. 42-64.

The design of a course of instruction tailored to achieve a particular purpose is demonstrated, with emphasis on the production of an integrated course of instruction instead of a miscellaneous collection of lessons. The topics discussed are: planning a unit-oriented course; developing a unit of instruction; choosing an instructional method; and planning the component parts of a unit. Sample course, unit, and lesson plans are included, and further readings are suggested. **(72)**

TYLER, RALPH W. **Basic principles of curriculum and instruction** Chicago: The University of Chicago Press, Syllabus Division, 1950. 83 pp.

The following four questions which must be answered in developing any plan of instruction are identified: What educational purposes should the school seek to attain?, What educational experiences can be provided that are likely to attain these purposes?, How can these educational experiences be effectively organized?, and How can we determine whether these purposes are being attained? Procedures for answering the questions are presented, with a major division of the book devoted to each question. **(73)**

U. S. AIR UNIVERSITY. ACADEMIC INSTRUCTOR AND ALLIED OFFICER SCHOOL. Lesson planning. IN ITS **Principles and techniques of instruction.** Maxwell Air Force Base, Ala.: Air University, 1966. pp. 105-113.

The primary purpose of the lesson plan is to insure that the instructor considers every factor that might influence the effectiveness of a lesson as he plans that lesson. The lesson plan also helps keep a constant check on the activities he plans for himself as well as those he plans for the students. A guide to lesson planning is presented according to the following steps: (1) Establishing the Lesson Objective; (2) Formulating the Desired Learning Outcomes; (3) Researching the Topic; (4) Organizing the Lesson; (5) Selecting Instructional Methods; and (6) Preparing the Lesson Plan. A bibliography is included. **(74)**

U. S. CIVIL SERVICE COMMISSION. How to build course content. IN **Training the supervisor: a guide on how to set up and conduct a supervisory training program**, by L. David Korb. Washington: U.S. Govt. Print. Office, 1956. pp. 40-64.

An agency supervisory training program serves two purposes: it guides and assists elements of an agency in training supervisors, and it acts as a base of information and instruction, offering unity of purpose and action throughout the agency. Such a program seeks out or reviews the agency's purpose, establishes recognition for the need of training by collecting information on personnel inadequacies and breaking them down into "need units," classifies these needs and matches them with training objectives. It gathers content and assembles the units of instruction into a course; it records purpose, training aids, content, sequence, method, references, and supplies. Information can often be found in established programs, books, and manuals, and from instruction in other courses, research findings, supervisors, subject matter specialists, training personnel, officials of the organization, job analyses of activities of successful supervisors, the survey of the needs, and the trainer himself. Supervisory training usually includes duties and responsibilities of specific supervisory functions; knowledge of the work supervised; job instruction; work methods; human relations skills; job relations; employee training; management skills; communications; work improvement; self-development; safety and health; personnel management–including performance ratings, wages, grievances, incentive awards; and information about the parent organization–mission, policies, and regulations. The depth and amount of information taught at a session should be keyed to the learner's capacities. Plans should be flexible enough to conform to the trainees' needs as disclosed by their attitudes and performance. **(75)**

U.S. CIVIL SERVICE COMMISSION LIBRARY. Planning and developing training programs; an annotated bibliography. **Public personnel review** 16:2, April 1955. pp. 109-111.

References are selected on the basis of (1) general availability, (2) pertinence to the public service generally, and (3) recency of material. *(USCSC 2, edited)* **(76)**

U.S. DEPARTMENT OF THE ARMY. **Supervisor's guide to job instruction** (Civilian Personnel pamphlet no. 42-A). Washington, D.C.: Department of the Army, August 1963. 25 pp.

This guide is designed to present a systematic plan which may be followed by the supervisor in doing his training job. Skills training is defined as teaching employees to perform the job efficiently, safely, and economically. It involves both performance and knowledge. Specific aspects of determining needs, planning to meet needs, and followup or evaluation are discussed. Chapter and section headings are: (I) Introduction (Purpose of Guide, Definition of Training, Objectives of Skills Training, The Training Cycle); (II) Determining the Need for Skills Training (Obvious Needs, Selecting a Problem, Defining the Problem, Analyzing the Problem, Training Timetable, Planning to Meet Future Needs, Organization Expansion, Changes in Assignments, Changes in Equipment, Mobilization Readiness); (III) Planning and Administering the Skills Training (Determining Training Content; Selection and Development of Material; Training Methods–How Adults Learn, Factors in Selection of Appropriate Methods, The Four-Step Method, Understudies, Rotation, Lecture, Demonstration; Selection of Instructors; Training Instructors; Scheduling Training; Physical Facilities; Administering Program); and (IV) Evaluating and Reporting (Purpose of Evaluation; Planning the Evaluation; Evaluation in Terms of Production; Evaluation in Terms of Employee Performance; Evaluation of Training Program Elements; Using the Evaluation; Recording and Reporting Training). Examples of a training time table, a checklist for planning an instruction unit, an instructor evaluation form, a training attendance and rating record, and a certificate of training completion are included. **(77)**

URANECK, WILLIAM O. Creative problem-solving for planning training. **Training directors journal** 18:7, July 1964. pp. 37-39.

The article presents basic rules for developing a creative approach to planning and administering training programs in eleven steps. These steps include use of a training committee versed in group ideation; consideration of needs, goals, and evaluation techniques; and the need to report to management. *(USCSC 4, edited)* **(78)**

WARREN, VIRGINIA B. (ed.). How to plan an adult education course. IN HER **A treasury of techniques for teaching adults.** Washington, D.C.: National Association for Public School Adult Education, 1964. pp. 10-14.

Basic considerations for planning courses, responsibilities of teacher and students in planning, specific ways to involve students in planning an activity, and the need for varying techniques during class according to class needs are discussed. A sample of a completed course planning chart is presented with information arranged under the following headings: understandings to be gained, problems to be solved, activities to be experienced, skills to be acquired, resources to be consulted. **(79)**

PROGRAMMING INSTRUCTION

BRETHOWER, DALE M., DAVID G. MARKLE, GEARY A. RUMMLER, ALBERT W. SCHRADER and DONALD E. P. SMITH. **Programmed learning: a practicum.** Ann Arbor, Mich.: Ann Arbor Publishers, 1964. 237 pp.

This programmed course in programmed learning for industrial trainers and educators enables students to develop programs that will reduce training costs and improve job performance. The programs of those who have used the course are judged by experienced editors to be superior to the majority of currently published programs in relevance of behavioral objectives to needed skills and relevance of examples and student responses to program objectives. The text includes sections entitled: (1) Examples, (2) Overview, (3) Subject Matter Analysis, (4) Frame Construction, and (5) Testing and Revision. Appendix A gives the answers for problems in the text; Appendix B is a summary. **(80)**

ESPICH, JAMES E. and BILL WILLIAMS. **Developing programmed instructional materials: a handbook for program writers.** Palo Alto, Calif.: Fearon Publishers, 1967. 138 pp.

The book is designed as an introduction for the program writer to the varieties of professional techniques and procedures available to him in the creation of programs and is intended to be basic reading for school administrators, teachers, and others involved in the evaluation of programmed instructional materials. Part and chapter titles indicate organization of content: Part One, Preparation–(1) Behavioral Psychology; (2) The Feasibility Study; (3) Analysis of Materials; (4) Diagramming the Material; Part Two, Construction Techniques–(5) The Discrimination Frame Sequence; (6) The Constructed Response Frame Sequence; (7) The Branching Frame Sequence Technique; (8) Retrogressive Chaining; (9) BABOON Frames; (10) Adjunct Programming; (11) Adjustive Devices; Part Three, Editing and Testing–(12) The Program Edit; (13) Testing; (14) Test Analysis. An appendix contains program construction rules and an index. **(81)**

FRY, EDWARD B. **Teaching machines and programmed instruction: an introduction.** New York: McGraw-Hill, 1963. 244 pp.

The book is intended primarily for those who have had little background in the subject, but is designed as well for use in graduate education courses dealing with the teaching process, learning problems, or audio-visual education, and also courses in applied psychology dealing with training situations or more theoretical courses or seminars dealing with the factors involved in particular learning tasks. Following an initial chapter presenting a general introduction to programmed instruction are parts and chapters entitled: Part I, Basic Considerations in Programmed Instruction–(2) Teaching Machines; (3) Principles of Programming; (4) Programming Techniques; (5) Educational Objectives and Programming; (6) Programming and Student Differences; (7) The Use of Programmed Learning; Part II, Construction and Evaluation of Programs–(8) Preliminary Considerations; (9) Presentation Variables; (10) The Individual Frame; (11) The Response; (12) Rewards; (13) Rate, Branching, and Practice; (14) Judging Program Quality. A bibliography is included. **(82)**

HORN, ROBERT E. **Developmental testing: trying out programmed instructional materials with individual students.** Ann Arbor, Mich.: The Center for Programmed Learning for Business, 1964. 35 pp., panel book and tape.

This program of self-instruction for programmer-trainees has been designed to be used as a part of a course in programming or instructional systems design. It is assumed that the person taking the program has had some exposure to the use of programs and to the writing of sequences. The program is comprised of the frame book, the panel book, and an audio-tape recording. The frame book includes chapters entitled: (1) Pre-Test on Developmental Testing; (2) Watching a Developmental Test Taking Place; (3) Checklist for the First Tryout Session; (4) Encouraging Students to Make Comments; (5) When to Interrupt; (6) How to Intervene in the Tryout Process; (7) The Problem of Inadvertent Teaching; (8) Post-Tryout Interview; (9) Making Notes of Student Comments; (10) Some Personal Observations by the Author; (11) Development Testing Exercises; and (12) Post-Test on Developmental Testing. **(83)**

LYSAUGHT, JEROME P. and CLARENCE M. WILLIAMS. **A guide to programmed instruction.** New York: John Wiley & Sons, 1963. 180 pp.

Chapter titles indicate contents: (1) Origins and Fundamentals of Programming; (2) Selecting a Unit to Be Programmed; (3) Assumptions about Learners; (4) Appropriate Objectives; (5) Selection of a Paradigm; (6) Constructing the Paradigm; (7) Editing and Review; (8) Evaluation; (9) Applications and Implications. A selected bibliography and index are included. **(84)**

MARKLE, SUSAN MEYER. **Good frames and bad: a grammar of frame writing.** New York: John Wiley & Sons, 1964. 278 pp.

Upon completion of this program, the student will be able to (1) describe the principles upon which linear and intrinsic programming are based and to describe methods for combining techniques drawn from each; (2) analyze frames and identify their potential function depending upon their structure; (3) use the terminology of programming correctly in describing programs and frames; and (4) "transfer," i.e., given adequate subject matter knowledge, facility in communication, experience with appropriate students, and guidance in the statement of objectives, the student will be able to produce the first draft of a satisfactory program in his own field. Fifteen rules for good frames are discussed. An appendix offers comments on the branching technique. A bibliography is included. **(85)**

MARKLE, SUSAN MEYER. Individualizing programmed instruction: the programmer. **Teachers college record** 66:3, December 1964. pp. 219-228.

Programmed instruction shares some advantages of a private tutor: both adjust to a student's learning rate and guide him efficiently and comfortably. But the standard linear program and the multiple-choice format are sometimes inadequate because, as a program evolves through testing on slow students, it becomes slow, easy, and loses its challenge. The answer is multiple tracking–review and practice for those who need them, and direct paths through the program for those who do not. This branching technique allows for individual differences. **(86)**

MARKLE, SUSAN MEYER, LEWIS D. EIGEN and P. KENNETH KOMOSKI. **A programmed primer on programming.** 2nd edition. New York: The Center for Programmed Instruction, 1961. 2 vols., 27 pp. + 40 pp.

The following chapters are included in this elementary programmed text on the theory and practice of programmed instruction: Volume I–(1) Principles on Which Programmed Instruction Is Based; (2) Techniques for Insuring Correct Responses; (3) Programming as Experimental Teaching; (4) Branching; (5) Uses and Devices; Volume II–(1) Utilizing the Student's Repertoire: Formal and Thematic Prompts; (2) Introducing a New Response into the Student's Repertoire; (3) The Design of Sequences: Sequence as a Prompt; (4) Development of Concepts; (5) Review. **(87)**

MELCHING, WILLIAM H., ROBERT G. SMITH, JR., JESSE C. RUPE and JOHN A. COX. **A handbook for programmers of automated instruction** (Procedural guide). Fort Bliss, Tex.: HumRRO Division No. 5 (Air Defense), September 1963.

This handbook is a textbook and reference for developing programmed instruction courses and treats, in detail, all of the activities necessary to produce effective programs. It is organized to parallel the sequence of activities a programmer should follow when preparing a program. Emphasis is placed on derivation and preparation of instructional objectives essential to the preparation of an effective program. *(HumRRO)* **(88)**

PIPE, PETER. **Practical programming.** New York: Holt, Rinehart & Winston, 1966. 70 pp.

A practical guide to the preparation and writing of programs is presented. The book is designed for use by the beginner and requires no previous knowledge of the theory and practice of programming. Though background information is presented, broad statements about the applications of programmed instructions, the mechanics of frame writing, and reports on studies are not included. Chapter titles describe the contents: (1) Introduction; (2) Programming Today (Characteristics of Programmed Instruction, History of Programmed Instruction, Linear Programming, Branching Programming, Two Spurious Issues); (3) Preparation (Step 1: Selecting Your Topic; Step 2: Writing a General Statement; Step 3: Defining Your Objective in Behavioral Terms; Step 4: Defining Prerequisite Skills in Behavioral Terms; Step 5: Writing a Criterion Test; Step 6: Developing a List of Contents, Final Caution); (4) Writing the Program (The Five Phases of a Program, Student Responses, Format, Linear Programs, Branching Programs); (5) Testing and Revising; (6) Editorial Qualities. An index is included. **(89)**

Recommendations for reporting the effectiveness of programmed instructional materials (Prepared by the Joint Committee on Programmed Instruction and Teaching Machines). Washington, D.C.: National Education Association, Division of Audiovisual Instructional Service, 1966. 35 pp.

The material is presented in four sections. Recommendations for Reporting the Effectiveness of Programmed Instruction Materials (reprinted from *AV Communication Review* 14:1, Spring 1966) is intended for prospective users of programmed instruction, deals with the selection and effective use of instructional programs, and provides guidance for publishing programs and for reporting data on program effectiveness. Recommendations are offered concerning information on the effects that a given program can be shown to produce, regardless of how these effects may relate to the user's purposes. Supplement I (to above title, reprinted from *AV Communication Review* 14:2, Summer 1966) offers suggestions for information to be included in a program manual for teachers and other users who require information about program characteristics. Supplement II (to above title, reprinted from *AV Communication Review* 14:2, Summer 1966) contains recommendations intended to serve as a guide for those who are preparing technical documentation in support of statements about the outcomes that a program can produce. Criteria for Assessing Programmed Instructional Materials (reprinted from *Audiovisual Instruction* 8:2, February 1963) is addressed to the nontechnical reader interested in the purchase of programs, summarizes some basic aspects of the nature of the current status of programmed instruction, and offers suggestions and cautions concerning the assessment of programs. **(90)**

ROCKLYN, E. H., J. R. O. SULLIVAN and R. ZEMKE. Olivetti programming: a useful programming variation. **Training and development journal** 22:1, January 1968. pp. 40-44, 46.

Olivetti programming, a method for ensuring the learning of prose material, consists of supplementing a prose text with a special programmed text designed to produce learning behaviors common to effective programmed instruction and adjunct programming. It is especially useful in covering detailed technical content of high concept diversity. It differs from regular programmed instruction in that two sources of material are intermittently used by the student. Any person with general training experience can do an acceptable job of producing an Olivetti program on his first attempt by following the series of steps listed in this article. Testing is suggested if time and circumstances permit. Objective test results reported here indicated that, on the average, about 80 percent of the material in the original text has been learned. **(91)**

ROWNTREE, DEREK. **Basically branching.** London: Macdonald & Company, 1966. 209 pp.

Linear programs of instruction are based on the operant conditioning theory of learning. Branching programs are based on traditional tutorial methods. A sample sequence of a branching program illustrates how material presented to the student depends entirely on his response to the questions. Following an explanation of what the branching program basically is and how it works is an investigation of its underlying psychological rationale and a discussion of the question of selecting and training programmers. A second section concerns itself with program planning: subject matter, audience, goals, and the achievement of goals. The third and final section is a guide to the actual writing of the program with specific recommendations on style and the execution of the text from first to final draft. Selected reading lists are furnished at the end of some chapters. The book is indexed. **(92)**

TABER, JULIAN I., ROBERT GLASER and HALMUTH H. SCHAEFER. Program development. IN THEIR **Learning and programmed instruction.** Reading, Mass.: Addison-Wesley, 1965. pp. 139-150.

Certain problems involved in the actual production of a program are considered: the selection and use of students in program tryout; the training of programming personnel; the steps in developing the first draft of a program; problems in editing and revision; and the contents of a program manual to accompany the final published program. Some current practices in production methods are also indicated. **(93)**

THOMAS, C. A., I. K. DAVIES, D. OPENSHAW and J. B. BIRD. **Programmed learning in perspective: a guide to program writing.** Chicago: Educational Methods, 1963. 183 pp.

The book concentrates on linear programming. The authors have developed from the Ruleg system a systematic procedure for writing linear programs, much of which holds also for programs of a more sophisticated structure. The book has four main sections with twenty chapters: Section I, Education Today and Yesterday—(1) The Problems of the Educationist, (2) The Teaching Situation; Section II, Programmed Learning and Teaching Machines—(3) Programmed Learning, (4) Linear, Branched, and Adaptive Programming, (5) Teaching Machines, (6) Teachers and Teaching Machines; Section III, The Construction and Writing of Programs—(7) The Benefits of Programming, (8) First Steps in Programming, (9) Collection and Organization of Material, (10) Construction of the Matrix, (11) Interpretation of the Matrix, (12) The Flow Diagram, (13) The Writing of

Frames; Section IV, Programs in Perspective—(14) Stages in Writing a Program on Elementary Electricity—Ohm's Law, (15) Program on Elementary Electricity, (16) Analysis of the Individual Frames in the Programs on Elementary Electricity, (17) Stages in Writing a Program on Pythagoras' Theorem, (18) Program on Pythagoras' Theorem, (19) Pythagoras' Theorem—Analysis of Frames, (20) Problems and Aspects of Programming for Language Training. A list of selected titles on programmed learning is included. **(94)**

WILDS, PRESTON LEA and VIRGINIA ZACHERT. **Final report, effectiveness of a programmed text in teaching gynecologic oncology to junior medical students: a source book on the development of programmed materials for use in a clinical discipline.** Augusta, Ga.: The Medical College of Georgia, January 1966. 370 pp.

This report was written to meet the needs of persons interested in research results of a project evaluating new educational media in clinical medicine and for persons interested in the problems involved in the development of programmed materials of sufficient quality for use in graduate level instruction. Chapters are: (1) Statement of Problem; (2) Catalog of Project Materials (teaching and testing materials developed and used by the project); (3) Experimental Design of the Project; (4) Development of Programmed Teaching Materials (work accomplished prior to the start of the project, controls of course content, development and revision of "content" text, the unique sequencing aspects of case presentations, and comparisons of revisions of the "content" and "applications" texts); (5) Results; (6) Interpretation of Data; (7) Principal Contributions of the Project (a summary discussion of the development of the programming methods, the effects of the texts, the effect on the curriculum, shortcomings of evaluation methods, the development of new tests, and the texts produced). Appendices contain sample frames, tests, objectives, and research data. There is a 69-item bibliography. **(95)**

DETERMINING NEEDS–GENERAL

CROW, RICHARD R. Group training in higher management development. **Personnel** 29:6, May 1953. pp. 457-460.

The author discusses some ways of isolating specific management training needs and suggests criteria for use in determining when to apply group training methods. *(USCSC 3, edited)* **(96)**

DINDA, ROBERT. **An investigation of methods of determining management training needs** (Master's thesis). Cambridge, Mass.: Massachusetts Institute of Technology, July 1961. 152 pp.

An investigation of fourteen methods of determining management training needs in twelve categories of business, including non-profit organizations, was conducted. The thesis includes an analysis of the methods as well as a study of the extent of use of methods of determining training needs. The research methods used included a literary search as well as a survey of 265 businesses classified into twelve categories. Training personnel reflections of management attitude toward the performance of the training activities were checked through interviews with fourteen management representatives of thirteen industrial corporations. The results of the study indicate a notable degree of relation in the use of the fourteen methods of determining needs by twelve categories of business as indicated by a calculation of a coefficient of concordance. As a result of the study, it was concluded that irrational methods of determining training needs must be avoided at all costs. *(ASTD)* **(97)**

DUFFY, HOWARD M. Avoid the "shot-gun" approach to training; survey your needs before you train. **Trained men** 39:3, 1959. pp. 18-23.

Diagnosis of training needs through careful analysis will result in less expensive and more effective training. The author lists and discusses advantages and disadvantages of common methods for determining training needs, and he presents a simple inventory form to record training needs on an organizational element basis. *(USCSC 3, edited)* **(98)**

GILBERT, THOMAS F. Praxeonomy: a systematic approach to identifying training needs. **Management of personnel quarterly** 6:3, Fall 1967. pp. 20-33.

Four rules provide a basis for deciding how to limit training objectives to a practical program of instruction. The first rule: instructional objectives should be expressed in terms of deficiencies only, determined by subtracting the behavior that the trainee already knows from what he will have to know in order to master a subject or task. It is a waste of time and money to teach a trainee what he already knows. The second rule: acquirement (what a person has learned) must be differentiated from accomplishment (the value of what a person has learned). For diagnostic purposes in instruction, attention should be directed to acquirement. It should be recognized that individual differences in acquirement are relatively small, whereas differences in accomplishment are large. The third rule: deficiencies in knowledge must be differentiated from deficiencies in execution. Training is not the remedy for deficiencies in execution; their remedies must be determined by special study. There are four causes of faulty execution: (1) inadequate feedback; (2) task interference; (3) punishment; and (4) lack of motivation. These problems should be removed from a list of instructional objectives. The fourth rule: the value of overcoming a deficiency should be compared to instructional costs to determine a priority of objectives before planning instruction. **(99)**

GORDON, DAVID E. Appraising training needs–a new technique for management. **Personnel journal** 44:7, July-August 1965. pp. 349-353.

"How does your company determine training for its first line supervisors' requirements? This article outlines a technique of eliciting training needs from the first line supervisors themselves, based upon the techniques of self-evaluation." The six phases of the self-evaluating techniques are (1) formulation of written job descriptions; (2) self-appraisal by each foreman and his supervisor of how well he carries out his responsibilities; (3) identification of problems and comparisons; (4) assessment of weaknesses by the supervisor with each foreman; (5) followup by management; and (6) training. *(ASTD)* **(100)**

HALLAM, JAMES A., GENE NEWPORT and ROLAND D. SPANIOL. Determining training needs. **Journal of the American Society of Training Directors** 16:6, June 1962. pp. 51-57.

The article notes the various approaches used in appraising training needs such as the subjective, objective, and integrative. The latter method is discussed in detail, and other symptoms of the necessity for training are pointed out. Among these are poor leadership, poor morale, low productivity, high rate of employee turnover, and inadequate decision-making. *(USCSC 4, edited)* **(101)**

HALSEY, GEORGE D. Determining training needs and planning the program. IN HIS **Training employees.** New York: Harper & Brothers, 1949. pp. 237-253.

Making a separate survey of training needs in each of the following training areas is recommended: (1) training new employees; (2) training present employees for increased work effectiveness; (3) training outstanding employees for promotion; (4) executive training; and (5) attitude training. A general outline of questions to ask in making a training survey and an in-plant training program developed from such a survey are presented. Further discussion centers on planning training to meet a specific operating need, responsibilities of a training director, and compliance with the law. **(102)**

JACKSON, B. B. and A. C. MacKINNEY. Methods of determining training needs. **Personnel** 36:5, September-October 1959. pp. 60-68.

Methods for determining training needs are classified into three general categories: emotional, rational, and empirical. It is recommended that emotional methods be avoided and that rational methods be used mainly for preliminary analysis. The article urges greater use of the more dependable empirical methods and points out that there is no single "best" method; one method will pick up needs that another method may miss. Examples of each type of method are described. A 21-item bibliography is included. **(103)**

JOHNSON, RICHARD B. Determining training needs. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook.** New York: McGraw-Hill, 1967. pp. 16-33.

The chapter is divided into three sections. In the first section, Analysis of Training Needs, basic reasons for determining training needs are discussed and categorization of types of training needs is presented. The second section, Methods to Determine Training Needs, briefly discusses the methods: analysis of an activity (process, job, operation), of equipment, of problems, of behavior, of an organization; appraisal of performance; brainstorming; buzzing; card sort; checklist; committee; comparison; conference; consultants; counseling; in-basket; incident pattern; informal talks; interviews; observation; problem clinic; research; role-playing; self-analysis; simulation; skills inventory; slip writing; studies; surveys; tests; task force; questionnaire; workshop; and other ways. In the third section, Sources of Training Need Information, the following are discussed: articles, books, case studies, complaints, crises, experience of others, factual data, grievances, plans, policies, records, reports, requests, rumor, statements, symptoms, and other sources. A 24-item bibliography is included. **(104)**

KORB, L. DAVID. How to determine supervisory training needs. **Personnel** 32:4, January 1956. pp. 335-352.

An approach to determining training needs, based on problems and long-range goals of the organization, is presented. Ways by which training needs can be identified are reviewed. Among methods discussed in the article are: interviews, questionnaires, observation, analysis of records, group discussion, individual appraisal by supervisors, individual job analysis by a supervisor and his superior, appraisal panels, and a self-development approach. **(105)**

LERDA, LOUIS W. and LESLIE W. CROSS. Performance-oriented training needs analysis. **Journal of the American Society of Training Directors** 16:3, March 1962. pp. 40-44.

The article describes four approaches to training need determination: responsility analysis; problem approach; the interview-questionnaire; and the personnel inventory. *(USCSC 4, edited)* **(106)**

PROCTOR, JOHN H. and WILLIAM W. THORNTON. Determining training needs. IN THEIR **Training: a handbook for line managers.** New York: American Management Association, 1961. pp. 28-42.

Needs are the skills, knowledge, and attitudes individuals require in order to overcome problems and to avoid creating problem situations. It is the line manager's responsibility to determine training needs; he may get help from specialists, but the decisions are his. The line manager should consider training when he foresees the possibility of surpassing standards by improvement or difficulty in meeting present standards; when experienced employees are to be transferred, promoted, or retired; when new equipment and facilities dictate new methods; and when measures of production and indicators of morale consistently run counter to the desired direction. Some of the techniques for determining specific training needs are observations, management requests, interviews, group conferences, job or activity analyses, questionnaire surveys, tests or examinations, merit or performance ratings, personnel records, business and production reports, and long-range organizational planning. Four techniques are considered in detail: (1) job analysis describes all the unit operations performed by the worker, each operating step in correct sequence, and key points related to each operating step; (2) checklist surveys record the opinion and observations of respondents concerning training needs and often needs shared by several employees within a single department or across department lines; (3) interviews are discussions with the employee regarding his work (they are usually held by line managers, but they may be handled by the training specialist); (4) from the analysis of personnel data, the extent to which a problem is growing can be determined, possible consequences can be forecast, and a broader view of training needs across departmental and divisional lines can be obtained. At times, more than one method of determining specific training needs may appropriately be used. **(107)**

ROSE, HOMER C. Determining training requirements; and Appendix B, an analysis and inventory of management and supervision. IN HIS **The development and supervision of training programs**. Chicago: American Technical Society, 1964. pp. 105-135; 239-265.

The seven steps in planning and directing training programs are: (1) determine job performance requirements; (2) assess personnel resources (aptitude and ability); (3) determine training requirements (kinds and levels of required skills); (4) assess training resources; (5) plan programs; (6) direct, control, and evaluate the process of training (classroom, laboratory, on-the-job); and (7) evaluate product (performance on the job). The first three steps are discussed in detail in this chapter. In Section 1, Determining Performance Requirements, eight characteristics of job or occupational analysis are listed. A detailed example of such an analysis is presented in Appendix B which contains three parts: discussion of the inventory, the inventory of management skills, and selected references referred to in the inventory. In Section 2, Assessing the Skills Possessed by Individual Employees, there is consideration of direct observation aided by progress charts, personal interviews, questionnaires, theory and information tests, performance tests, on-site surveys, and analysis of operating problems and development. In Section 3, Determining Qualitative and Quantitative Requirements for Training, four steps are delineated. The need for having the information which is gathered organized, evaluated, and summarized by one competent person, and then evaluated by a group, is emphasized. Examples of summaries made by various groups, for training people within geographic areas, are included. Diagrams, tables, and illustrations support the text. **(108)**

STERNER, FRANK M. Determining training needs: a method; a systematic procedure for establishing needs and priorities. **Training directors journal** 19:9, September 1965. pp. 42-45.

This article is concerned with a technique by which inappropriate and ineffective training may be avoided. The method described includes six major steps: (1) study of the work, (2) development of training needs checklists, (3) survey of training needs, (4) analysis of training results, (5) establishment of priorities and initiation of training, and (6) a periodic review of needs. *(USCSC 4, edited)* **(109)**

TIMBERS, EDWIN. Defining training needs. **Training directors journal** 19:2, February 1965. pp. 17-19.

In this article seven different approaches that have been used in defining training needs are discussed. The approaches include (1) opinion surveys, (2) performance appraisals, (3) management query, (4) observation, (5) termination interviews, (6) personnel changes, and (7) personnel statistics. The author states, however, that the use of multiple methods is more effective than use of any one method. By identifying training needs before starting a training program, it is possible to establish long-range objectives. *(ASTD)* **(110)**

U. S. CIVIL SERVICE COMMISSION. **Assessing and reporting training needs and progress** (Personnel Methods series no. 3). Washington: U.S. Govt. Print. Office, 1961. 80 pp.

Methods and approaches to reviewing training needs, planning training for meeting them, and evaluating the training provided are suggested. The chapter on identifying training needs presents an approach to need identification based on an analysis of organizational problems and conditions and of employees' performance, problems, and potential. The advantages and limitations of need identification methods are reviewed: interview, questionnaire, testing, group problem analysis, job analysis and performance review, and records and reports study. The chapter on evaluation considers the nature and purpose of evaluation; suggests major steps to follow in planning and conducting it; considers the problem of standards; and discusses sources, treatment, and use of evaluation data. The chapter on meeting needs lists methods and resources and describes the major steps in planning training. Examples are given of suggested approaches to assessing training needs and progress. References are cited in the text, and a 54-item bibliography is included. **(111)**

U. S. CIVIL SERVICE COMMISSION. How to determine supervisory training needs in management. IN ITS **Training the supervisor**, by L. David Korb (Personnel Methods series no. 4). Washington: U.S. Govt. Print. Office, 1956. pp. 18-39.

In designing a program to determine organizational training needs, one must initially consider certain factors: availability of training staff; size, structure, and dispersion of the organization; amount and type of prior training; whether a regular or pilot program is being considered; contemplated scope of the training venture; amount of expected assistance; possibility of use of a specific "packaged" instruction course; and the probable life span of the new training course. Data on training must then be gathered in order to prepare "need analysis" forms for organizational approval. The three steps in this process are: (1) collection of information by either the survey or individual appraisal approach (the survey approach includes interviews, questionnaires, and record reviews; the individual appraisal approach includes supervisory appraisal and self-appraisal performed in groups where individuals consider possible training solutions to their own problems); (2) analysis and separation of data into the need for knowledge of organizational policies and the need for supervisory and management skills; (3) comparison of analyzed data with data gathered by other organizations for the purpose of supplementation and reinforcement. **(112)**

U. S. CIVIL SERVICE COMMISSION LIBRARY. **Planning, administration, and evaluation of executive development programs** (Personnel Bibliography series no. 4). Washington, D.C.: The Library, 1961. 64 pp.

The bibliography includes a section on "determination of training needs," pp. 12-16. *(USCSC 2, edited)* **(113)**

DETERMINING NEEDS–JOB AND TASK ANALYSIS

AMMERMAN, HARRY L. **Development of procedures for deriving training objectives for junior officer jobs** (Technical report 66-3, Task SAMOFF). Fort Bliss, Texas: Human Resources Research Office, Division No. 5 (Air Defense), May 1966. 82 pp.

Research was undertaken to develop a systematic method that could be used by service school personnel to prepare job-oriented training objectives for junior officers, primarily in the form of behavioral statements of student performance expected after training. The procedures developed are divided into four phases: (a) listing of all tasks for a job; (b) selecting tasks for some formal training; (c) identifying the training emphasis needed in the selected tasks; (d) specifying the knowledges and skills necessary for the selected training aspects. The procedures included administration of experimental questionnaires, both by personal interview and by mail, reviews of pertinent directives and publications, and visits to field units. As the procedures were developed, they were tried out on a sample officer job (Nike Hercules Fire Control Platoon Leader). In the trial application a task inventory of 452 items provided the basis for choosing, by use of definite selection rules, 101 job activities (22%) for some formal schooling; of 160 training objectives stated for these activities, 46 were performance-type objectives for which detailed activity descriptions were required. It is believed that use of these procedures by service school personnel to prepare junior officer training objectives is feasible, and that these procedures provide a method for deriving behavioral statements of relevant and essential objectives (author's abstract). **(114)**

AMMERMAN, HARRY L. **Manual of procedures for deriving training objectives for junior officers.** 1st revision. Fort Bliss, Texas: U.S. Army Air Defense Human Research Unit, November 1964. 232 pp.

The manual describes procedures for analyzing a junior officer job in order to specify training objectives appropriate to a service school program of instruction. Detailed instructions are provided for preparing specific training objectivesfor junior officer courses. Sequential steps leading up to the final statements of training objectives are described (with illustrative materials and examples). These steps include a complete description of the junior officer job, the administration and analysis of job questionnaires, and detailed task and skill analysis of selected job activities. Background discussions of training objectives and of the nature of officer job behavior are also included. The manual is divided into two parts. Part One provides background and a general introduction to the procedures; Part Two presents detailed instructions for carrying out the procedures described in Part One. Chapters in Part One explain the structure, source, and use of training objectives; describe the method of deriving training objectives from job requirements; and suggest additional applications and uses of the method. Chapters in Part Two are arranged in the sequential order in which the information will be used in accomplishing the entire set of procedures. **(115)**

BUREAU OF NATIONAL AFFAIRS, INC. **Job analysis** (Personnel Policies Forum, survey no. 79). Washington, D.C.: The Bureau, 1966. 29 pp.

Findings of a survey are presented. Data on prevalence and characteristics of job analysis programs, products of job analysis and how they are used, job analysis and employee morale, and time and costs in analyzing typical jobs are included. There is also a collection of forms. *(USCSC 1, edited)* **(116)**

HAGGARD, DONALD F. **The feasibility of developing a task classification structure for ordering training principles and training content** (HumRRO research memorandum). Alexandria, Va.: The George Washington University, Human Resources Research Office, January 1963.

This report explores the need for developing a method of systematic analysis, description, and classification of behavioral events as a preliminary step in evolving generalized theoretical formulations and utilizing available knowledge. The theory and methodology of taxonomy are reviewed in relation to the problem of integrating empirical knowledge obtained from discrete behavioral events. Current efforts to construct taxonomic systems for behavior are examined. An organization of effort is suggested for further development of (1) a theoretical framework for interrelating behavioral research at all levels of generality and (2) a more restricted task classification for training principles and training content. *(ASTD)* **(117)**

LANHAM, ELIZABETH. Job analysis. IN HER **Job evaluation.** New York: McGraw-Hill, 1955. pp. 124-175.

Job analysis is defined as the process of determining (by observation and study) and reporting pertinent information relating to the nature of a specific job. It is the determination of the tasks that comprise the job and of the skills, knowledges, abilities, and responsibilities that are required of the worker for successful performance and that differentiate the job from all others. Section headings within the chapter are: Methods for Securing Job Facts, Selection of Personnel for Securing Job Facts, Selection of Personnel for Giving Job Facts, Determination of the Type of Information to Secure, and Training the Job Analysts. Detailed sample questionnaires, work sheets, and job requirement forms are included. **(118)**

MADDEN, JOSEPH M. Determining training needs. IN Ofiesh, Gabriel D. and Wesley C. Meierhenry (eds.). **Trends in programmed instruction.** Washington, D.C.: National Education Association, Department of Audiovisual Instruction, and The National Society for Programmed Instruction, 1964. pp. 124-126.

The Air Force method of job description is discussed. This method uses a task inventory to survey the work of job incumbents. The task inventory presents task statements organized into categories called duties. The incumbent checks off the tasks he performs, adds any not listed, and gives any other information asked for, such as frequency of performance. The advantages of this method of job description over other methods are discussed, and its usefulness in inferring training needs is pointed out. **(119)**

McGEHEE, WILLIAM and PAUL W. THAYER. Operations analysis. IN THEIR **Training in business and industry.** New York: John Wiley & Sons, 1961. pp. 61-87.

Operations analysis is described as one phase in a threefold approach to the determination of training needs (other phases being organization analysis and man analysis). This phase establishes the content of the training program. The data of operations analysis consists of performance standards; task identifications; job methods; and skills, knowledge, and attitudes. Procedures for conducting an operations analysis are discussed. These include reviewing literature about the job, observing the job, performing the job, and asking questions about the job. **(120)**

MILLER, ROBERT B. Analysis and specification of behavior for training. IN Glaser, Robert M. (ed.). **Training research and education.** Pittsburgh: University of Pittsburgh Press, 1962. pp. 31-62.

Task analysis is approached in terms of the kind of information needed for training decisions. Included are discussions of the different functions of tasks; the collection, organization and coding of task information; the development of training from a task analysis; and the implications of task analysis for general education. A 12-item bibliography is appended. **(121)**

MILLER, ROBERT B. Task description and analysis. IN Gagné, Robert M. (ed.). **Psychological principles in system development.** New York: Holt, Rinehart and Winston, 1962. pp. 186-228.

The purposes of task description and analysis are described and their relation to the process of system development is indicated. The general rationale for task description within the framework of system development, the nature of task description, its categories of operation, and its terminology are all discussed. Finally, the analysis of tasks into their behavioral requirements and the use of the analysis for the design and evaluation of training are discussed. **(122)**

MORSH, JOSEPH E. Keeping training on target. **USAF instructors journal** 5:2, Fall 1967. pp. 11-15.

Job analysis is discussed. Reviews of the observation-interview method and the job inventory method are included, the latter having been adopted as the official procedure for surveying Air Force jobs. The Air Force administers the job inventory as a booklet to large samples of workers who respond to the task statements organized under major functions of their jobs. In addition to specifying whether or not they perform each task, respondents provide identification, background information, and data descriptive of their performance of the tasks. **(123)**

ROSE, HOMER C. Determining what to teach. IN HIS **The instructor and his job.** Chicago: American Technical Society, 1961. pp. 57-77.

The determination of content of certain types of training, both formal and on-the-job, is difficult. Several methods which may be used to determine this content are: interviewing individuals or groups, submitting questionnaires, using formal tests, and making a detailed analysis of each job performed to identify skills and knowledge required at all levels of performance. In this chapter the job analysis method is discussed in terms of 5 steps: (1) determining the blocks (small but major parts of a job); (2) determining and listing the doing units; (3) determining and listing the knowing units; (4) listing the steps in a doing unit; and (5) outlining the knowing units. Samples of practical analyses are included. Thirteen questions and assignments conclude the chapter. **(124)**

DETERMINING NEEDS–OTHER SPECIFIC METHODS

CALDWELL, LYNTON K. Determining training needs for organizational effectiveness. **Personnel administration** 26:2, March-April 1963. pp. 11-19.

The article notes that training needs are most likely to be found when discovered in a general manpower or personnel resources survey. The survey, use of outside consultants, costs, and relation of training to personnel development are discussed. *(USCSC 4, edited)* **(125)**

DePHILLIPS, FRANK A., WILLIAM M. BERLINER and JAMES J. CRIBBIN. Discovering training needs and content. IN THEIR **Management of training programs.** Homewood, Ill.: Richard D. Irwin, 1960. pp. 152-158.

A procedure for establishing training needs and identifying individuals who should be trained is discussed: (1) analyzing the work force; (2) listing the operations; (3) studying available data; (4) observing; (5) talking; (6) evaluating the personnel; (7) making a job analysis; and (8) making a lesson plan (a sample is included). **(126)**

DUBIN, SAMUEL S. and H. LEROY MARLOW. **The determination and measurement of supervisory training needs of hospital personnel: a survey of Pennsylvania hospitals.** University Park, Pa.: Pennsylvania State University, 1965. 132 pp.

The objectives of this study were (1) to determine the present and long-range training needs of administrative, supervisory, and other hospital staff personnel; and (2) to recommend methods for providing continuing professional education for hospital personnel. A summary of questionnaire and interview responses and specific recommendations arising from these are presented. Appendices contain survey data and copies of questionnaires and form letters used. **(127)**

FLANAGAN, JOHN C. and ROBERT K. BURNS. The employee performance record, a new appraisal and development tool. **Harvard business review** 35:5, September-October 1955. pp. 95-102.

This article reviews an employee performance record program used by the Delco-Remy Division of General Motors Corporation. The performance record is described as being a procedure for collecting facts about employee performance rather than a yardstick or rating device. It is described as being useful to supervisors and management, both in improving the employee's understanding of the requirements of his present job and in developing his potential for more responsible positions. Descriptions of the performance record, guides to its use, and methods of evaluating the results are presented. **(128)**

GORHAM, WILLIAM A. Staff nursing behaviors contributing to patient care and improvement. **Nursing research** 11:2, Spring 1962. pp. 68-79.

The critical incident technique was used to collect and systematize information on the role of the staff nurse in contributing to patient improvement. The method, as applied in this study, is described in detail. Three main products of the research are presented: (1) definitions of the kinds of behaviors which constitute effective staff nursing performance; (2) a list of 320 specific behaviors with indices as to their desirability and the degree to which they discriminate effective from ineffective performance; and (3) the relative contribution of each of the areas and categories of job performance to patient improvement. **(129)**

KLAUS, DAVID J., D. E. GOSNELL, P. C. REILLY and J. A. TAYLOR. **Controlling experience to improve nursing proficiency: categories of nursing performance** (Report no. 2). Pittsburgh, Pa.: American Institutes for Research, January 1968. 38 pp.

An investigation to obtain information on the distribution of the activities of a general duty nurse in a medical-surgical hospital is described. As a part of the investigation, categories for classifying nursing activities were developed and observational data on the distribution of activities among the categories were collected.

The development of the instruction-oriented categories of nursing behavior and the procedures used to observe and classify nursing performance are described. The findings are discussed in terms of their implications for the selection, assignment, and training of nursing personnel. The categories of nursing performance used and a sample activity record are included in an appendix. There is a bibliography. **(130)**

McGEHEE, WILLIAM and PAUL W. THAYER. Man analysis. IN THEIR **Training in business and industry**. New York: John Wiley & Sons, 1961. pp. 88-125.

Man analysis is described as the third phase in a threefold approach to the determination of training needs (other phases being organization analysis and operations analysis). This phase establishes who needs training and what training he requires. The process of man analysis is divided into two steps–summary analysis and diagnostic analysis–and procedures for both steps are delineated. Three methods of data collection are discussed: objective job performance records, devised situational measures, and observational measures. Achievement tests are the main situational measure reviewed, but it is suggested that lists can be developed to rate performance in some devised situations that are usually used only for training purposes (role-play, case study, Pigors' incident method, and business games). Observational measures discussed are checklists, critical incident procedures, forced-choice ratings, diagnostic ratings, diaries, interviews, and questionnaires. **(131)**

McGEHEE, WILLIAM and PAUL W. THAYER. Organization analysis. IN THEIR **Training in business and industry**. New York: John Wiley & Sons, 1961. pp. 24-60.

Organization analysis is the first phase in a threefold approach to the determination of training needs (other phases are operations research and man analysis). This phase determines where training emphasis can and should be placed within the organization. The four steps involved in this phase are discussed in detail: (1) statement of the organization's objectives, (2) analysis of human resources, (3) analysis of efficiency indices, and (4) analysis of the organizational climate. **(132)**

WHITING, JOSEPH F. The medical practitioner's view of continuing medical education: a systematic approach and some preliminary data. **Archives of dermatology**, vol. 96, August 1967. pp. 132-146.

"The fact that although the full range of our national organizational, political, economic, and technological power has become associated in recent years with continuing medical education, yet specific concrete data (as distinct from hearsay evidence and clinical impressions) on the medical practitioner's views regarding the substantive aspects of his own continuing education are practically non-existent, is a paradox." The unique ecology of continuing medical education is described and fundamental requirements of an adequate method for enabling the physician to articulate his views regarding his own continuing medical education are stated. The development of a data collection device for obtaining information in this area is described. An outline of kinds of data sought in the preliminary field trial of the method is included. Preliminary results from analysis of a structured sample of Utah practitioners' responses to the device are presented in the areas of (1) weekly work schedule; (2) resume of patient contacts in two days of full-time medical practice; (3) selected data on diagnostic entities regarding applicability to medical practice, breadth of educational need in the medical community, and intensity of educational need; and (4) methods currently used by practitioners to satisfy their educational needs. [Located too late for indexing.]

WNUK, J. J., JR. The 3x5 card: a training technique. **Training directors journal** 18:3, March 1964. pp. 29-32.

The purpose of the 3x5 cards, as described in the article, is to allow the participants in a training program to reveal their problems and yet remain anonymous. The 3x5 cards are given to trainees and the trainees write their particular problems on the cards. The cards are turned in and mixed up so that none may be traced. The cards may then be given out for people to read as disinterested parties, and the question can be discussed without anyone feeling personally affected. The main feature of this technique is that it allows the real problems to be aired so that training may be given in these areas of difficulty. The procedure for using such a system is included in the article. *(ASTD)* **(133)**

OBJECTIVES–DEVELOPMENT AND USE

BLOOM, BENJAMIN S. (ed.), MAX D. ENGELHART, EDWARD J. FURST, WALKER H. HILL and DAVID R. KRATHWOHL. **Taxonomy of educational objectives; handbook I, cognitive domain.** New York: David McKay Company, 1956. 207 pp.

This book presents the first of two taxonomies developed by a group of college and university examiners for the purpose of facilitating communication about educational goals. Objectives in the cognitive domain deal with the recall or recognition of knowledge and the development of intellectual abilities and skills. Categories of cognitive objectives are ordered along a continuum of increasing complexity ranging from "knowing" at one end to "evaluating" at the other. For each category, three levels of definition are given: (1) a verbal description of the class or subclass; (2) illustrative examples of objectives for each subclass; and (3) illustrative examples of test items for each subclass. **(134)**

BURNS, RICHARD W. Objectives and classroom instruction. **Educational technology** 7:17, September 15, 1967. pp. 1-3.

Many schools operate without objectives and most educational materials are prepared without behavioral objectives. To help the education profession and related interests correlate theory with practice, the following suggestions are made: (1) all teachers in training should develop skill in expressing objectives in terms of specific behavior; (2) all practicing teachers should be exposed through inservice training experiences to the theory of behavioral objectives and the practical aspects of expressing them in writing; (3) all teachers should be required to establish a list of specific objectives for each area taught; (4) teachers should experiment with allowing students to set their own learning goals; (5) teachers, supervisors, and administrators should demand that published materials be developed from carefully defined and published learning goals; (6) research should be initiated to establish procedures aimed at discovering the real needs of students; (7) published materials should be designed for less variable learner populations; (8) teachers (who so desire and who have the aptitude for it) should be allowed time to develop some of their own teaching materials; (9) teachers should experiment with lists of objectives; and (10) teachers should experiment with alternative yet similar objectives, letting students choose what they desire to learn. **(135)**

ESBENSEN, THORWALD. Writing instructional objectives. **Phi Delta Kappan** 48:5, January 1967. pp. 246-247.

A well-written instructional objective should say: (1) what a student who has mastered the objective will be able to do; (2) under what conditions he will be able to do it; and (3) to what extent he will be able to do it. It also will suggest how the student's accomplishment can be measured, but it should not specify how that accomplishment is to be achieved. **(136)**

FOSTER, JERRY F. Classification of cognitive educational objectives. **Training directors journal** 19:7, July 1965. pp. 34-45.

The objectives of this self-instructional program are stated as: (1) the learner will recall that an educational objective should include a statement of the desired behavior change in terms of the level of desired achievement and a method by which this achievement can be measured; (2) the learner will immediately recognize a hierarchy of cognitive educational objectives and will recall that each higher level in the hierarchy assumes attainment of all the lower levels; (3) the learner will demonstrate his skill in classifying educational objectives in levels within a hierarchy by correctly classifying four out of five educational objectives within 30 minutes; (4) the learner will demonstrate his skill in formulating educational objectives to a level within a hierarchy by correctly formulating an objective for a provided term or concept to a specified level within a hierarchy within 30 minutes. The classification system taught is based on *Taxonomy of Educational Objectives*, Benjamin S. Bloom (ed.). **(137)**

GAGNÉ, ROBERT M. The implications of instructional objectives for learning. IN Lindvall, C. M. (ed.). **Defining educational objectives**. Pittsburgh: University of Pittsburgh Press, 1964. pp. 37-46.

The need for a system for classifying instructional objectives that will indicate the teaching strategies that should be used to achieve them is discussed. As a solution, a seven-category hierarchy for classifying the behavior that is to be learned is suggested: (1) responses, (2) identifications, (3) response chains or sequences, (4) associations, (5) concepts, (6) principles, and (7) problem-solving and strategy-using. The behaviors at each level of the hierarchy are discussed and it is proposed that the behaviors at the different levels differ in terms of the conditions necessary for optimal learning and that learning the behaviors at a particular level requires the pre-learning of related behaviors at every level lower in the hierarchy. There are 14 references. **(138)**

HOEHN, ARTHUR J. and ANDREW J. McCLURE. **The development of training programs for first enlistment repairmen: I. how to define training objectives (Job Train I).** Alexandria, Va.: The George Washington University, Human Resources Research Office, July 1960. 67 pp.

A method is described for defining training objectives in terms of minimum performance requirements. Concepts and principles related to the definition of objectives are stated, and a procedure based on these concepts and principles is described. This procedure is designed for use with the development of training in equipment maintenance. The application to one military occupational specialty is used as illustration, and the techniques are explained in detail. **(139)**

JENSEN, BARRY T., STANLEY J. TEREBINSKI and WILLIAM R. ELLIS. The importance of criterion definition. **Journal of the American Society for Training and Development** 15:2, February 1961. pp. 3-7.

Three levels of goals or criteria–ultimate, intermediate, and immediate–are discussed, and an explanation is given of the way they function to direct and evaluate progress. The importance of making criteria known to workers and, in training, to trainees is stressed. Examples are provided of inadequately defined criteria for workers and of how these lead to the workers' establishing their own, possibly incorrect, criteria. **(140)**

KRATHWOHL, DAVID R. Stating objectives appropriately for program, for curriculum, and for instructional materials development. **The journal of teacher education** 16:1, March 1965. pp. 83-92.

The article is concerned with the use of educational objectives at several levels of detail in the educational process. The most general levels of objectives are most relevant to program planning, the intermediate level to curriculum development, and the most specific level to instructional material development. The article makes two basic points: (1) objectives at several levels of generality and specificity are needed to facilitate the process of curriculum building and instructional development; (2) a framework or taxonomy currently exists that can facilitate the development and analysis of objectives at the intermediate level, and one is at present being developed at the more detailed level. **(141)**

KRATHWOHL, DAVID R. The taxonomy of educational objectives–its use in curriculum building. IN Lindvall, C. M. (ed.). **Defining educational objectives.** Pittsburgh: University of Pittsburgh Press, 1964. pp. 19-36.

The taxonomy developed under the leadership of Dr. Benjamin S. Bloom to provide a more precise means of communicating about educational objectives is described. Presented are the categories and illustrative objectives from the cognitive and affective domains. The assumptions on which the taxonomy is based and ways in which it might be used are discussed. There are five references. **(142)**

KRATHWOHL, DAVID R., BENJAMIN S. BLOOM and BERTRAM B. MASIA. **Taxonomy of educational objectives; handbook II, affective domain.** New York: David McKay Company, 1964. 196 pp.

The second of two taxonomies, this book was developed by a group of college and university examiners for the purpose of facilitating communication about educational goals. Included are those objectives which "emphasize a feeling tone, an emotion, or a degree of acceptance or rejection." The categories in the taxonomy are ordered along a continuum of internalization ranging from "awareness" at one end to a generalized outlook on life at the other. Although such words as "satisfaction," "valuing," and "commitment" are used, they are defined in terms of intended student behaviors. For each category, three levels of definition are given: (1) a verbal description of the class or subclass; (2) illustrative examples of objectives for each subclass; and (3) illustrative examples of test items for each subclass. In addition, there is a section on some of the major issues in the behavioral measurement of each category. A 70-item bibliography is included. **(143)**

LINDVALL, C. M. (ed.). **Defining educational objectives; a report of the Regional Commission on Educational Coordination and the Learning Research and Development Center**. Pittsburgh: University of Pittsburgh Press, 1964. 83 pp.

Educational planning must be based on the goals of education. This report assumes that statements of the purposes of education are meaningful only if they tell exactly what a pupil is to be able to do after he has had a learning experience. Each chapter presents somewhat different ideas on defining instructional objectives, but all clarify some aspect of the educational task in terms of what pupils are expected to be able to do. Chapter titles and authors are: (1) Instruction, by C. M. Lindvall; (2) The Importance of Specific Objectives in Curriculum Development, by C. M. Lindvall, Stella Nardozza and Margaret Felton; (3) The Taxonomy of Educational Objectives–Its Use in Curriculum Building, by David R. Krathwohl; (4) The Implications of Instructional Objectives for Learning, by Robert M. Gagne; (5) Instructional Objectives and Programmed Instruction: A Case Study, by Robert Glaser and James H. Reynolds; (6) Some Persistent Questions on the Defining of Objectives, by Ralph W. Tyler. **(144)**

MAGER, ROBERT F. **Preparing instructional objectives.** Palo Alto, Calif.: Fearon Publishers, 1962. 60 pp.

This programmed text is intended to teach the reader how to specify and communicate the instructional intents he has selected; it is not concerned with who should select objectives or with which objectives should be selected. Discussed are the importance of being explicit, the qualities of meaningful objectives, identifying the terminal behavior, defining the conditions of performance, and stating the criterion for successful performance. A self-test is provided. **(145)**

POPHAM, W. JAMES and EVA L. BAKER. **Educational objectives** (filmstrip-tape program). Los Angeles: Vimcet Associates, 1967. Color, 37 frames, 25 minutes.

The specified objectives of the program are that, after viewing the program, the learner should be able to: (1) accurately distinguish between written objectives which are stated in terms of student behavior and those which are not so stated; (2) convert nonbehavioral objectives to objectives which adequately describe post-instruction pupil behavior; (3) obtain a score on an attitude inventory which reflects a more favorable disposition toward behaviorally stated instructional objectives. The program is designed for both experienced and future teachers. A report of validation studies on the program and related test questions and answers which may be used as pre- and post-tests are included. **(146)**

POPHAM, W. JAMES and EVA L. BAKER. **Establishing performance standards** (filmstrip-tape program). Los Angeles: Vimcet Associates, 1967. Color, 46 frames, 22 minutes.

The program is designed to help teachers and prospective teachers make explicit their expectation of student achievement. There are three objectives. At the conclusion of the program, the viewer should be able to perform the following behaviors: (1) when given a statement of an objective, to identify the portion of it, if any, which describes a student performance standard (a level of achievement which enables instructors to identify those students who have satisfactorily achieved the objective); (2) when given an objective, to identify the portion of it, if any, which specifies the class performance standard (achievement levels used to judge the adequacy of instruction); (3) when provided with an objective, to construct performance standards of the two types listed above using both quantitative and qualitative standards. The accompanying instructor's manual includes a report of validation studies on the program, a guide to the instructional use of the program, and a quiz (with answers) which may be used as a pre- and/or post-test. **(147)**

POPHAM, W. JAMES and EVA L. BAKER. **Selecting appropriate educational objectives** (filmstrip-tape program). Los Angeles: Vimcet Associates, 1967. Color, 44 frames, 26 minutes.

The general objective of the program is to develop a more positive attitude toward behaviorally stated objectives. The viewer is given practice in using modified versions of the taxonomies of educational objectives developed by Bloom, Krathwohl, and associates toward accomplishing four specific objectives: (1) the learner will be able to distinguish correctly between written objectives representing the cognitive, affective, and psychomotor domains of pupil behavior; (2) having properly identified cognitive objectives, the learner will be able to classify them as (a) the lowest, or (b) higher than the lowest level of the cognitive domain; (3) given a relatively unstructured task of writing objectives for a single class period, the learner will tend to write cognitive objectives at a higher level than would be the case prior to viewing the program; and (4) learners will achieve pre- to post-instruction scores on an attitude inventory which reflect a positive attitude toward objectives. The accompanying instructor's manual includes a report of the validation studies on the program and appropriate quiz questions and answers which may be used as pre- and post-tests. **(148)**

SMITH, ROBERT G., JR. **An annotated bibliography on the determination of training objectives** (HumRRO research memorandum). Alexandria, Va.: The George Washington University, Human Resources Research Office, June 1964. 39 pp.

This research memorandum is an annotated bibliography prepared as a basis for a manual on the determination of training objectives. The references included in this bibliography are from the following sources: (1) *Psychological Abstracts* from 1954 to present, (2) *Annual Review of Psychology* from 1957 to present, (3) recent books on training and human factors, (4) *HumRRO Bibliography, Cumulative Supplement*, and (5) suggestions solicited from directors of research at HumRRO's Units and Divisions. References are listed alphabetically by author according to seven categories: (I) General Rationales, (II) System Analysis, (III) Job Analysis, (IV) Allocation of Training, (V) Task Description, (VI) Determination of Knowledges and Skills, and (VII) Description of Objectives. A total of 101 references are listed. *(ASTD)* **(149)**

SMITH, ROBERT G., JR. **The development of training objectives** (Research bulletin 11). Alexandria, Va.: The George Washington University, Human Resources Research Office, 1964. 101 pp.

Procedures for developing and stating training objectives are described. The introduction includes discussion of the importance of job-related objectives and uses of objectives for course design and communication. Chapter headings and selected subheadings indicate contents: (1) Introduction; (2) System Analysis; (3) Developing the Task Inventory (How to Develop a Task Inventory for Enlisted Men; Task Inventories for Officers' Jobs); (4) Deciding Which Tasks to Teach (The Basic Problem; Rationales for Deciding What to Teach; Obtaining Information About Tasks); (5) Describing Tasks in Detail (The Purpose of Detailed Task Description; Types and Aspects of Tasks; Formats for Detailed Task Description; Preparation of the Detailed Task Description); (6) Determining the Knowledge and Skill Components of Tasks; and (7) How to State Objectives. There is a classified bibliography. Appendices contain a sample system analysis, examples of duty and task levels of generality, an illustration of the decision process, and sample task description formats. **(150)**

SOLEM, ALLEN R., VICTOR J. ONACHILLA and KARL Z. HELLER. The posting problems technique as a basis for training. **Personnel administration** 24:4, July-August 1961. pp. 22-31.

The use of Maier's posting problems techniques as a basis for determining training objectives, content, method, and an evaluation approach are described. An experiment was conducted in a series of one-week management institutes for lower and middle level line supervisors and staff personnel in the field service of a government agency. Results suggest advantages over traditional approaches and a number of useful guides in performing the training function. **(151)**

WALBESSER, HENRY H. **Constructing behavioral objectives.** College Park, Md.: University of Maryland, College of Education, Bureau of Educational Research and Field Services, 1968. 90 pp.

The reader is instructed in the identification and construction of behavioral descriptions. The instruction is separated into three units. Each unit is designed to help the reader to acquire certain specific competencies. After covering the first unit, Behavioral Objectives: Appearance and Components, the reader should be able to (1) distinguish between behavioral and nonbehavioral descriptions of objectives when given a list containing statements of each kind; and (2) identify and name the characteristics of a behavioral objective. The second unit, Behavioral Objectives: Operational Practices and Construction, is meant to enable the reader to: (1) describe a set of procedures employed in the construction of a minimal working set of action verbs for use in the description of behavioral objectives; (2) identify an assessment task consistent with an action verb; (3) identify action verbs consistent with assessment tasks; (4) identify appropriate action verbs for behavioral objectives; and (5) construct a behavioral objective and an assessment task. Objectives for the third unit, Behavioral Hierarchies, are to develop the reader's abilities to (1) distinguish between a behavioral hierarchy and a scope and sequence chart; (2) describe a procedure for constructing a behavioral hierarchy; and (3) demonstrate the behavioral hierarchy construction procedure by providing one subordinate level of behaviors when given a terminal task. Self-assessment questions are included at the end of each unit. **(152)**

SELECTING METHODS

DePHILLIPS, FRANK A., WILLIAM M. BERLINER and JAMES J. CRIBBIN. Criteria for selecting appropriate training methods. IN THEIR **Management of training programs**. Homewood, Ill.: Richard D. Irwin, 1960. pp. 166-171.

Eleven criteria for selecting appropriate training methods are discussed: pertinence; effectiveness; trainer's familiarity with the method; factors of time and physical facilities; cost; size of the trainee group; type of training program; attitudes of the training group; the trainer's motivation; the trainer's personality; and company climate. **(153)**

FILLEY, ALAN C. and FRANKLIN C. JESSE. Training leadership style: a survey of research. **Personnel administration** 28:3, May-June 1965. pp. 14-18.

The article recommends the proper balance the trainer should maintain between leader-centered and group-centered training methods. It examines training goals and other determinants of training leader styles, discusses the selection of a proper leadership method, and enumerates conditions which determine when leader-centered and group-centered training methods are more effective. A bibliography is included. *(USCSC 4, edited)* **(154)**

McGEHEE, WILLIAM and PAUL W. THAYER. Specific training techniques. IN THEIR **Training in business and industry**. New York: John Wiley & Sons, 1961. pp. 192-196.

There is a definite need for carefully controlled research: (1) to examine the relative efficiencies of techniques under a wide variety of conditions; and (2) to examine the "whys" of each technique. When selecting training techniques, consideration should be given to: (1) the kinds of behavior desired; (2) the number of employees to be trained; (3) the ability level of trainees; (4) individual differences among trainees; (5) cost in relation to various factors; and (6) the incorporation of learning principles. **(155)**

POPHAM, W. JAMES and EVA L. BAKER. **Appropriate practice** (filmstrip-tape program). Los Angeles: Vimcet Associates, 1967. Color, 30 frames, 31 minutes.

The program is designed to assist an instructor with the selection of learning activities that are likely to lead to the successful attainment of instructional goals. The viewer learns about two forms of learner behavior (equivalent and analogous practice) that permit students to practice the behavior called for in the instructional objective. In addition, a brief examination is provided of prerequisite (preliminary) tasks, as well as behavior that is irrelevant to objectives. In general the program tends to force the instructor to focus on the "end-relevance" of his instructional means. The specific objectives of the program are: (1) at the end of the program, the learner will be able to distinguish between written examples of pupil activities according to whether they are equivalent practice, analogous practice, prerequisite tasks, or irrelevant to a given objective; and (2) at the end of the program the learner will be able, given instructional objectives, to write out learning activities that are equivalent practice, analogous practice, and prerequisite tasks and objectives. The accompanying instructor's manual includes a report of validation studies on the program and appropriate quiz questions and answers which may be used as pre- and post-tests. **(156)**

TALLMADGE, G. KASTEN and JAMES W. SHEARER. **Study of training equipment and individual differences** (Technical report NAVTRADEVCEN 66-C-0043-1). Orlando, Fla.: Naval Device Training Center, March 1967. 105 pp.

"The aim of this project was to determine whether training effectiveness could be increased by employing training methods which differed as a function of trainee characteristics. A study was designed involving a control and two experimental training methods and 16 measures of trainee aptitudes and interests. The experimental training methods were designed to reflect Gagné's (1965) Type 3 (Chaining) and Type 7 (Principle Learning) theoretical constructs" (report abstract). References are included. **(157)**

U. S. CIVIL SERVICE COMMISSION. Selecting training methods. IN ITS **Training the supervisor; a guide on how to set up and conduct a supervisory training program**, by L. David Korb (Personnel Methods series no. 4). Washington: U.S. Govt. Print. Office, 1956. pp. 65-80.

The technique or method of training should be as simple, clear, and economical as possible. If knowledge is to be taught, the lecture method is an efficient means of transmitting information. The lecture can be followed with a discussion period. Since the lecture method is dependent on auditory memory, it should be reinforced and supplemented with the judicious use of demonstration and visual aids, such as films, charts, and handouts. If skills are to be developed, the trainee needs to be shown how to perform the task. He then requires practice time to demonstrate his skill proficiency. If attitude modification or human relations skills are sought, techniques such as role-play, case studies, or problem-centered conferences may be employed. The conference method varies in its structuredness. In the "directed conference" the leader presents the subject matter in a planned sequence with a time schedule which restricts discussion; in the "free" or "unstructured conference" the leader stimulates participation and discussion. The usual training conference, sometimes called the "guided conference," utilizes advantages of both types. Other techniques are described briefly: multiple management, in which a group of selected supervisors and junior executives form a junior board and are given real problems to review, research, and analyze; central training schools, in which both upper and middle management participate, gaining not only specialized training but also a common understanding of organization goals; vertically structured training groups, in which all levels of an organization's supervisory staff take joint courses; two-level training group, in which the vertically structured group is expanded to include both supervisors and superiors; human relations laboratories, in which social leaders gain insights into their personal modes of interaction within groups; and coaching methods, with which superiors assist individual supervisors to improve their job performance through objective analyses of their developmental needs. **(158)**

U.S. DEPARTMENT OF AGRICULTURE. FOREST SERVICE. SOUTHEASTERN AREA AND SOUTHERN REGION. Selection of method. IN ITS **Instructor training course**, n.d. pp. 249-253.

Five variations of conferences are described and compared: formal lecture, lecture with questions, training conference (directed discussion), seminar (problem-solving conference), and pure conference (no predetermined outcome). A chart entitled Selection of Method Based on Knowledge of Student Background lists methods suggested for variations in knowledge of student background and indicates the amount of participation these methods involve: formal lecture, lecture with questions, training conferences and practical exercises, seminar and group exercises, and pure conference and staff planning. **(159)**

VERNER, COOLIE and ALAN BOOTH. Managing the learning experience. IN THEIR **Adult education.** New York: The Center for Applied Research in Education, Inc., 1964. pp. 68-90.

Educational methods, techniques, and devices are all used to manage the learning experience. Methods are particular ways of organizing people for conducting an educational activity; techniques are ways of establishing a relationship between the learner and the learning task in order to facilitate learning; and devices are conditions or things used to augment the techniques and make learning more certain. Some individual methods are correspondence study, apprenticeship, internship, and directed study; some group methods are the class, discussion group, workshop or institute, meeting, forum or assembly, and community methods. Some techniques for acquiring information are lecture or speech, and panel; techniques for acquiring a skill are process demonstration, role-playing, and drill or practice; techniques for applying knowledge are group discussion, and buzz group or Phillips 66 discussion. Devices such as result demonstrations and films may be used for illustration; devices such as radio and television may be used for extension; and devices such as tools, equipment, and working models may be used for manipulation. The most crucial task of the instructional agent is the selection of the right methods, techniques, and devices. A competent choice requires extensive knowledge of the learning process, the nature and interaction of groups, the socio-cultural characteristics of participants, and the efficacy and appropriateness of the various methods, techniques, and devices. Many different but interdependent factors must be reconciled to arrive at the appropriate choice. Among these factors are limitations imposed by method on techniques and devices; the nature of the learning task; characteristics and experience of the participants; abilities of the instructional agent; inherent efficiency of the technique; availability of facilities and equipment; and the nature of the learning process. Techniques are classified in two tables according to usefulness in groups of varying sizes under different situational requirements. **(160)**

SELECTING MEDIA

ALLEN, WILLIAM H. Media stimulus and types of learning. **Audiovisual instruction** 12:1, January 1967. pp. 27-31.

The effectiveness of audiovisual instructional media in accomplishing different types of objectives is considered. A table gives a rough and preliminary rating information; visual identification; principles, concepts, and rules; procedures; performance of skilled perceptual-motor acts; and (2) for developing attitudes, opinions, and motivations. The following step-by-step procedure should be used in order to make the most effective application of instructional media to teaching: (1) state the exact behavior expected of the learner; (2) identify the type of learning objective being met by the instructor; (3) determine availability of the instructional media; (4) determine availability of equipment; and (5) arrange for preparation of unavailable instructional media and/or access to needed equipment. A list of references is included. **(161)**

BRIGGS, LESLIE J. Multimedia instruction: a true story. **Audiovisual instruction** 12:3, March 1967. pp. 229, 253.

The author, finding that little had been written specifically on choosing the appropriate medium of instruction for a particular teaching objective, applied for and was given funds from the Office of Education for a study of the literature and for developing a step-by-step procedure for choosing media to achieve objectives. Subsequently, in developing a multimedia course on first-aid procedures, he applied, in part, the procedure he had developed; time did not permit him to apply it in full. He did, however, make explicit his rationale for each use of media in the course and also used the tryout and revision procedures first developed by the practitioners of programmed instruction. Tests given to people without first-aid training, to people with other first-aid training, and to people taking the course developed by the author resulted in non-overlapping distributions. The poorest student in the new course performed better than the best student in other courses. **(162)**

BRIGGS, LESLIE J. A procedure for the design of multimedia instruction. **Audiovisual instruction** 12:3, March 1967. pp. 228, 252.

To select the most appropriate media for accomplishing the objectives of each element of instruction, carry out this procedure: (1) select and define the objectives of instruction and state them in terms of behaviors to be developed by the students; (2) sequence the objectives so that component or prerequisite knowledge will be acquired before more complex learning; (3) identify for each objective the type of learning represented; (4) list for each objective the sequence of instructional events which would provide the general conditions of learning required for the type of learning instructional event the nature of the stimuli (such as intensity, duration, and requirement for motion); (6) identify tentatively the optimum medium for presenting each stimulus described in the preceding step; (7) review objective sequences to make media choices that would permit use of one presentation medium for a reasonable length of time before changing to another medium during the instruction; and (8) write specifications for the specialist who will prepare material for each medium. **(163)**

BRIGGS, J. LESLIE, ROBERT M. GAGNÉ and MARK A. MAY. A procedure for choosing media for instruction. IN Briggs, Leslie J., Peggie L. Campeau, Robert M. Gagné and Mark A. May. **Instructional media: a procedure for the design of multimedia instruction, a critical review of research, and suggestions for future research.** Pittsburgh: American Institutes for Research, 1967. pp. 28-52.

Six steps are recommended for choosing instructional media: (1) state the behavioral objectives in the sequence in which they should be taught; (2) identify the type of learning required by each objective; (3) use the required conditions of learning as a guide to design for each objective a "media program" that lists the instructional events, identifies the characteristics of required stimuli, and states the acceptable media options; (4) summarize the media options for a group of objectives in a sequence of instruction and identify frequently occurring media options; (5) assign the media to achieve optimal effectiveness of stimulus display, convenience in changing from medium to medium, and economy in terms of size of unit in which each sequence is to be prepared in the given media; and (6) write specifications to guide those who will produce the media. An account is given of how the steps are used for the six forms of learning most often required in educational courses. A detailed discussion of each step is also presented to show its full significance in choosing media. **(164)**

HARTSELL, HORACE C. and RICHARD A. MARGOLES. Guidelines for the selection of instructional materials. **Audiovisual instruction** 12:1, January 1967. pp. 23-26.

Too frequently instructional materials selection has been based on the wants of the teacher and not on what ought to be available to the learner. The key curriculum issues seem to be need for establishing priority, importance of learning how to learn, need to see the school program as a totality, and caution in promotion of "easy to adopt" packaged programs. The clinical link, the communication link, and the judgment link deal with standards for setting up objectives for the selection of media. Before the teacher makes a decision as to what to do with media, he should think through the following ideas with others: (1) what order of hierarchical events constitute the day's objective(s) and/or the weekly lesson plan?; (2) what sequence of knowledge (in behavioral terms) has already been attained by the student(s)?; (3) what behavior is expected to be exhibited by the student after the utilization of the media?; (4) what are the characteristics of the media?; (5) what forms of evaluation can determine where the students are in terms of the expected behaviors?; and (6) how should one set up a variety of experiences in order to coordinate the acquired learning experience(s)? He also needs to know the types of assistance that the school can provide. **(165)**

PARKER, JAMES F. and JUDITH E. DOWNS. **Selection of training media** (ASD technical report 61-473). Wright-Patterson Air Force Base, Ohio: Aeronautical Systems Division, Aerospace Medical Laboratory, Behavioral Sciences Laboratory, September 1961. 94 pp.

Translating statements of desirable personnel performances and capabilities into training objectives is discussed. Statements on the ability of various training media to meet specific types of objectives are justified in terms of objective evidence. An example illustrates the selection of training media for a typical Air Force operator position. Chapter headings and sections following the introduction further indicate contents: Chapter II, The Classification of Human Performance within Systems; Chapter III, Efficient Learning Environments; Chapter IV, Simulation of Contextual Environments; Chapter V, Training Media—simulators, procedures trainers, animated panels, charts, training films, transparencies, mock-ups, television, teaching machines or automated training; Chapter VI, The Selection of Training Media in Relation to Specific Training Objectives. There is a 7-page bibliography. **(166)**

SNIDER, ROBERT C. Selection and use of visual media. IN **Research, principles, and practices in visual communication.** Washington, D.C.: National Education Association, Department of Audiovisual Instruction, 1960. pp. 119-128.

Adequate attention has not been given to the various modes of visual communication. Historically visual forms of communication have played a little noted but essential role in the development of our present-day civilization. Photography is a kind of language that is communicated through a number of media, e.g., snapshots, newspapers, posters, slides, and motion pictures. The photographer must understand the subject matter he is to photograph, and he must know how to use the camera. Words and pictures are important in verbal-visual presentations such as illustrated lectures, captioned filmstrips, illustrated displays, or even sound motion pictures. Together they perform more effectively than either can perform alone. Projected visuals—motion pictures, slides, filmstrips, and other forms—have much appeal and are among the most effective of the visual teaching aids. They attract and hold attention and are able to show great detail. Selecting motion pictures, filmstrips, slides, and other commercially produced audiovisual instructional materials is a continuing activity that can best be viewed as three important steps in the teaching process: (1) once the teaching objectives have been clearly established, it is necessary to identify materials that can be used to accomplish these objectives most effectively; (2) after potentially useful audiovisual materials have been identified but not previewed, it will be necessary to procure them for further consideration and possible class use; (3) the third step is the decision to use a particular material with students and how it will be used. A list of instructional techniques which, if properly used, increase learning from films, is included. **(167)**

EVALUATION–TESTS AND MEASUREMENT (GENERAL)

EBEL, ROBERT L. **Measuring educational achievement.** Englewood Cliffs, N. J.: Prentice-Hall, 1965. 401 pp.

The concepts, principles, and procedures for preparing and using tests of educational achievement are discussed. Test development and test analysis, rather than selection and use of standardized tests, are emphasized. Chapter titles are: The Need for Better Classroom Tests; What Should Achievement Tests Measure?; How to Plan a Classroom Test; The Characteristics and Uses of Essay Tests; How to Use True-False Tests; How to Write Multiple Choice Test Items; How to Administer and Score an Achievement Test; Describing Test Scores Statistically; How to Judge the Quality of a Classroom Test; How to Estimate, Interpret, and Improve Test Reliability; How to Improve Test Quality Through Item Analysis; The Validity of Classroom Tests; and Marks and Marking Systems. A glossary of educational measurement terms and an index are included. **(168)**

FLANAGAN, JOHN C. The use of comprehensive rationales in test development. **Educational and psychological measurement** 11:1, Spring 1951. pp. 151-155.

The need to improve the development of tests by precisely defining what is to be measured and by stating inferences and hypotheses on how to prepare valid tests is pointed out. A method designed for developing test specifications and intended to meet this need is described. In this method, rationales are developed for measuring the behaviors on what is assumed to be a valid list of behaviors to be sampled or predicted. In developing the rationales, each behavior is first defined, delimited, and illustrated to show the variety and scope of the actions included; then each behavior is classified with respect to other behaviors, inferences are made about its nature, and hypotheses regarding its generality and predictability are formulated; finally, deductions and practical suggestions are used to describe the particular type of item which should provide a valid estimation of each specified behavior. Examples of these procedures are given. This method of explicit rationales is designed to ensure systematic consideration of the available information by the test constructor; to make possible checking of his descriptions, analyses, inferences, and item specifications by editors and critics before the test items are prepared; and to provide detailed hypotheses that can be objectively tested. **(169)**

FLYNN, JOHN T. and HERBERT GARBER (eds.). **Assessing behavior: readings in educational and psychological measurement.** Reading, Mass.: Addison-Wesley, 1967. 377 pp.

The readings are organized under ten headings: (1) Purposes and History; (2) Essentials of a Useful Test; (3) Reliability and Validity; (4) Test Score Interpretations; (5) Measuring Cognitive Variables; (6) Measuring Noncognitive Variables; (7) Decision-Making and Prediction; (8) Teacher-made Tests; (9) School Testing Programs; and (10) Measurement in Research. A chart correlating the readings with chapters in popular measurement texts is provided at the end of the book. **(170)**

FURST, EDWARD J. **Constructing evaluation instruments.** New York: David McKay Company, 1958. 334 pp.

The basic problems in evaluation are discussed in Part I under the chapter headings: Determining What to Evaluate; Defining the Behavior; Selecting Appropriate Situations; Getting a Record; and Summarizing the Evidence. Part II gives specific information on constructing achievement tests in separate chapters on: Planning the Test; Constructing Items to Fit Specifications; Constructing Supply-Type Questions; Constructing Choice-Type Items; Review, Assembly, and Reproduction; Administration and Scoring; Analysis and Revision. The book is designed to help those concerned with evaluation of instruction (1) acquire an understanding of problems involved in developing an evaluation technique; (2) further their understanding of principles of test construction; (3) become familiar with some of the best references in the field; and (4) broaden their understanding of the purposes which can be served by tests and other techniques of appraisal. Chapters include graphic illustrations, concrete suggestions, and recommendations for further reading. The book is indexed. **(171)**

GREEN, JOHN A. **Teacher-made tests.** New York: Harper & Row, 1963. 141 pp.

This indexed book discusses the relationship between instructional objectives and evaluation objectives, and emphasizes the practical applications of testing rather than abstract measurement theory. Types of teacher-made tests are discussed, their strength and weaknesses noted, suggestions for improving the use of evaluating measurements are given, and specific rules and practical examples are presented to aid the teacher in constructing his own test. The book has nine sections: (1) Instruments and Criteria of Measurement (Strengths and Weaknesses of Various Test Forms; Selection of Teaching Objectives); (2) Planning Measurement Instruments (Planning the Test-Table of Specifications; General Principles of Test Construction); (3) Construction and Use of Informal Objective Tests (Short-Answer Form; Alternative Response Form; Multiple-Choice Form; Matching Form); (4) Construction and Use of Performance Tests (Measurement Approaches; Planning Performance Tests; Construction of Performance Tests; Evaluation of Performance Tests); (5) Construction and Use of Essay Tests (Planning Essay Tests; Construction of Essay Tests; Types of Essay Tests; Grading Essay Tests); (6) Construction and Use of Oral Examinations (Types of Oral Examinations; Planning Oral Examinations; Construction of Oral Examinations; Principles of Use; Special Advantages of Oral Examinations); (7) Characteristics of Good Measuring Instruments (Validity; Reliability; Usability); (8) Scoring, Grading, and Assignment of Course Marks; and (9) Statistical Treatment of Test Data (Untabulated Data; Frequence Distribution; Graphic Representation of Test Results; Central Tendency and Variability; Percentiles). **(172)**

LINDQUIST, E. F. (ed.). **Educational measurement.** Washington: American Council on Education, 1951. 819 pp.

This handbook and textbook on the theory and technique of educational measurement covers the functions of measurement in education, the construction of achievement tests, and measurement theory. Although chapters were written by single authors so as to provide different points of view and types of experience, all chapters were reviewed, criticized, and revised by a team. Each chapter lists references, and the entire text is indexed. Chapter titles are: The Functions of Measurement in the Facilitation of Learning; The Functions of Measurement in Improving Instruction; The Functions of Measurement in Counseling; The Functions of Measurement in Educational Placement; Preliminary Considerations in Objective Test Construction; Planning the Objective Test; Writing the Test Item; The Experimental Tryout of Test Materials; Item Selection Techniques; Administering and Scoring the Objective Test; Reproducing the Test; Performance Tests of Educational Achievement; The Essay Type of Examination; The Fundamental Nature of Measurement; Reliability; Validity; Units, Scores, and Norms; Batteries and Profiles. **(173)**

REMMERS, H. H., N. L. GAGE and J. FRANCIS RUMMEL. **A practical introduction to measurement and evaluation.** New York: Harper & Brothers, 1955. 370 pp.

An orientation to measurement and evaluation for those who have had little or no systematic study of this field, this book is designed for an introductory course in measurement and evaluation. Chapter titles under Part One, Orientation, are: Purpose and Organization of This Book, Survey of Evaluation in the School Program, and Statitistical Concepts Used in Measurement. Under Part Two, The School Testing Program, chapters are entitled: Development and Administration of the Evaluative Program; Selection of Measurement Instruments; and Administration, Scoring, and Interpretation of Tests. Chapters in Part Three, Evaluation of Classroom Instruction, are entitled: Identification of Educational Objectives, Constructing Teacher-Made Tests, and Assigning Marks and Reporting Pupil Progress. Chapter titles in Part Four, Appraisal of Personality Aspects, are: Determining Attitudes and Interests, and Assessing Emotional and Social Adjustment. A list of test publishers and a glossary of common measurement terms are provided in two appendices. The book is indexed. **(174)**

SYMONDS, PERCIVAL M. Eliminating bias in evaluating students' achievements. **American journal of nursing** 52:5, May 1952. pp. 610-613.

The purpose of the paper is (1) to analyze possible causes of variations in evaluation, and (2) to propose a few simple and practical steps that may be taken to remedy the situation. Two basic types of evaluation are (1) the evaluation of information, judgment, reasoning, and other responses that can be clearly defined as to correctness, and (2) the evaluation of other more vague and less tangible responses and personal qualities. The former calls for objective testing, where there is a minimum of judgment on the part of the tester; the latter calls for observation and the exercise of judgment. Factors causing variation in testing information and reasoning are first investigated, and four rules for improving objective test items are offered: (1) each test item should have only one correct response; (2) an item should be free from ambiguity; (3) the truth or falsity of an item should not be debatable; and (4) "specific determiners" (such as "always" and "never") which provide clues as to the correctness or falsity of the item should be avoided. Factors which cause variations in making judgments are discussed under the headings: halo effect; constant error judgment; variability of the subject; errors in memory; difference in the meaning of traits; differences in interpreting behavior; evaluator's procedure. Eleven suggestions for eliminating bias are offered and discussed. A list of references is included. **(175)**

THORNDIKE, ROBERT L. and ELIZABETH HAGEN. **Measurement and evaluation in psychology and education.** 2nd edition. New York: John Wiley & Sons, 1961. 602 pp.

The book is a comprehensive review of the subject and is intended as a guide to its theory and practice for psychologists, practicing and prospective teachers, and laymen. It is designed to serve as a textbook for courses related to the subject. Chapter titles are: (1) Historical and Philosophical Orientation; (2) Overview of Measurement Methods; (3) The Teacher's Own Tests; (4) Preparing Objective Tests; (5) Elementary Statistical Concepts; (6) Norms and Units for Measurement; (7) Qualities Desired in Any Measurement Procedure; (8) Where to Find Information about Specific Tests; (9) Standardized Tests of Intelligence or Scholastic Aptitude; (10) The Measurement of Special Aptitudes; (11) Achievement Tests; (12) Questionnaires and Inventories for Self-Appraisal; (13) The Individual as Others See Him; (14) Behavioral Measures of Personality; (15) Projective Tests; (16) Planning a School Testing Program; (17) Marking and Reporting; (18) Measurement in Vocational Guidance; and (19) Tests in the Selection of Personnel. There are four appendices: (I) Computation of Square Root; (II) Calculating the Correlation Coefficient; (III) A. General Intelligence Tests, B. Aptitude Test Batteries, C. Reading Tests, D. Elementary School Achievement Batteries, E. High School Achievement Batteries, F. Interest Inventories, G. Adjustment and Temperament Inventories; (IV) Sources for Educational and Psychological Tests. An index is included. **(176)**

WOOD, DOROTHY ADKINS. **Test construction–development and interpretation of achievement tests.** Columbus, Ohio: Charles E. Merrill Books, 1961. 134 pp.

Designed for use by both experienced and prospective teachers at all education levels, the book's principal purpose "is to expedite the transition from theory to practice, or to help to erase the cultural lag in the development and widespread use of psychological testing techniques drawn from an integrated body of subject matter that can be taught." No prerequisite knowledge of statistics is assumed; treatment of statistical methods useful in dealing with test scores is confined to minimum essentials. Though the book is concerned primarily with educational achievement testing, many of the principles and procedures described are applicable to the development of aptitude tests and the use of achievement tests in other settings, e.g., in personnel selection. The chapters are: (1) Introduction; (2) The General Nature of Educational Achievement Tests (Individual Differences; Tests as Predictors; Tests as Teaching Aids); (3) Principles of Psychological Measurement (The Meaning of Psychological Measurement; The Concept of Test Reliability; The Concept of Test Validity); (4) The Role of Objective Measures in Academic Achievement Testing (Reliability; Scoring Economy; Adequacy of Content Sampling); (5) Common Types of Objective Test Items (True-False Items; Multiple-Choice Items; Matching Items; Rank-Order Items; Completion Items); (6) Planning an Objective Test (Defining the Objectives of a Test; Weighing Test Components; Use of Statistical Data in Test Planning; Planning Optimal Testing Difficulty; Special Instructions for a Test; Planning Efficient Test Scoring; The Question of Correction for Guessing; Use of Optional Items); (7) Constructing Objective Test Items (Requisites for Item Writing; The Item as a Whole; The Alternatives; Independence of Items in a Test; Position of the Best Answer; Gauging Item Difficulty); (8) Treatment of Test Scores (The Frequency Distribution; The Range; The Grouped Frequency Distribution; The Median; The Arithmetic Mean; Other Measures of Dispersion; Translating Raw Scores to Letter Grades; Application of Suggested Guide Distributions; Combining Letter Grades from Several Examinations; Further Considerations in Combining Measures; An Alternative Procedure for Combining Scores; Another Example of Problems in Combining Scores; The Concept of Correlation); (9) Item Analysis (Item Difficulty; Item Discriminating Power); (10) The Essay Test (Definition; Presumed Advantages; Problems with the Essay Test; Improving the Essay Test). Appendices are: (A) Illustration of an Objective Approach to Measuring Scientific Thinking; (B) Illustrative Multiple-Choice Items; and (C) Illustrations of Various Forms of Multiple-Choice Items in Several Fields. Selected references are included. **(177)**

EVALUATION PROCESS

BELMAN, HARRY S. and H. H. REMMERS. Evaluating the results of training. **Journal of the American Society for Training and Development** 12:5, May 1958. pp. 28-38.

The definition of evaluation, what can and should be evaluated, and principles of evaluation are discussed. **(178)**

BESCO, ROBERT, JOSEPH TIFFIN and DONALD C. KING. Evaluation techniques for management development programs. **Journal of the American Society for Training and Development** 13:10, October 1959. pp. 13-27.

The place of evaluation in management training is discussed, and extensive supporting references are cited from the literature. The importance of defining goals and determining needs before attempting to design evaluation procedures is emphasized. Listed are seven steps to follow in evaluating a management development program. The difference between the evaluation of methods and the evaluation of results is stressed. Forty-nine references are given. **(179)**

BLUMENFELD, WARREN S. Attitude change as a criterion in training: the adequacy of experimental design in evaluating attitude change. **Training and development journal** 20:9, October 1966. pp. 26-32.

The author analyzed studies to determine the degree to which research concerned with attitude change as a criterion in the evaluation of training used an experimental design which would permit the experimenter to state (with some degree of statistical confidence) the role that particular training techniques played in his results. The studies analyzed were found in *Psychological Abstracts,* 1957 through 1961. Applicable studies were classified as to two variables: (1) control group versus no control group; and (2) pretest and posttest versus pretest only, posttest only, or no measurement instrument application. A fourfold table was accordingly set up and is included in the study. An example of each of the four classifications is presented. It is concluded that the number of published studies addressed to the use of attitude change as a criterion in the evaluation of training was relatively small when compared to the studies on personnel selection or rating (for example). Thirty-one references are included. **(180)**

CALDWELL, LYNTON K. Measuring and evaluating personnel training. **Public personnel review** 25:2, April 1964. pp. 97-102.

The article distinguishes between measurement and evaluation of training and states that their purpose is "... to discover the extent to which and in what ways training is effective. Probability, not certainty, is the only feasible objective." It points out the need for methods of measuring achievement, warns of common errors in the use of statistics, and notes the importance of selecting measurement criteria. Two points of reference are necessary: base point or level of performance before training, and standard of performance toward which training is directed. *(USCSC 4, edited)* **(181)**

CRONBACH, LEE J. Course improvement through evaluation. **Teachers college record** 64:8, May 1963. pp. 672-683.

A distinction is made between evaluation designed to improve a course and evaluation designed to judge individuals, whether they be pupils or teachers. Several approaches to evaluation for course improvement are discussed, and the need to use evaluation for this purpose is emphasized. Six references are included. **(182)**

CRONBACH, LEE J. Evaluation for course improvement. IN Heath, R. W. (ed.). **New curricula.** New York: Harper & Row, 1964. pp. 231-248.

Evaluation is collecting and using information to make decisions about an educational program; as such, it is used for decisions about course improvement, about individuals, and about administrative regulation. For course improvement, evaluation is used to ascertain what effects the course has, that is, what changes it produces in pupils. A process study can be used to evaluate events taking place in the classroom; proficiency and attitude measures can determine changes observed in pupils; and followup studies can relate later careers of pupils to the course. To evaluate courses, it is suggested that description and observation of general outcomes ranging beyond the curriculum content be made: that analysis of performance on single items or types of problems rather than of composite scores be carried out; and that the same test not be given to all pupils, but that moderate-sized samples of pupils each be given a different test, each test being made as long as possible. **(183)**

DRESSEL, PAUL L. and LEWIS B. MAYHEW. Evaluation as an aid to instruction. IN French, Sidney J. (ed.). **Accent on teaching.** New York: Harper & Brothers, 1954. pp. 297-320.

The theme of this essay is that approaching instruction through consideration of the evaluation problems can suggest many specific devices to enrich the learning process. An attempt is made to illustrate the proposition that a number of general principles firmly based in the psychology of learning, commonly accepted by teachers and closely related to evaluative thinking, can be evoked to maintain a clear sense of order and purpose while enlarging the range of instructional procedures to many additional practices. Three major purposes of evaluation are examined first: (1) investigation of program effectiveness; (2) improvement of the educational program; and (3) the motivation of students. The following topics are discussed: Importance of Evaluation in General Education; Evaluation Techniques Applied to Teaching (peer reactions, analyzed models, paper-and-pencil achievement tests, inventories, scales, and checklists, audiovisual aids); and Guides to the Use of Evaluative Concepts in Instruction (individualization of instruction, motivation, emphasis on progress). **(184)**

FREDERIKSEN, NORMAN. Proficiency tests for training evaluation. IN Glaser, Robert (ed.). **Training research and education.** Pittsburgh: University of Pittsburgh Press, 1962. pp. 323-346.

Criterion measures which reflect more accurately the objectives of instruction and which permit separate judgments about various aspects of the teaching program are needed. Training evaluation requires some method of measuring desired outcomes. These methods may involve: (1) soliciting opinions of students or experts; (2) using attitude scales; (3) measuring knowledge of facts and principles; (4) eliciting for observation behavior which is logically related to the desired outcome; (5) eliciting behavior in the "What would you do?" situation; (6) eliciting lifelike behavior in situations which simulate real life; and (7) observing real-life behavior. The real-life behavior is closest to the ultimate objectives of instruction, but it is rarely a good technique for evaluation because of lack of control of the test situation. Therefore, eliciting lifelike behavior in situations which simulate real life is the best measurement technique. **(185)**

GLASER, ROBERT and DAVID J. KLAUS. Proficiency measurement: assessing human performance. IN Gagné, Robert M. (ed.). **Psychological principles in system development.** New York: Holt, Rinehart & Winston, 1962. pp. 419-474.

Proficiency measurement is described within the framework of system development. Topics discussed include criterion vs. norm-referenced measures, standards, uses of proficiency measurement, the identification of the behavior to be measured, sampling of and assigning weights to performance components, precision and relevance in proficiency measurement, and the elicitation of behavior for measurement. Applications of proficiency measurement are also described. A 41-item bibliography is included. **(186)**

GOODACRE, DANIEL M., III. The experimental evaluation of management training: principles and practice. **Personnel** 33:6, May 1957. pp. 534-538.

A properly conducted experimental evaluation can provide information on the overall value of a particular training program and, if rightly designed, on the specific strengths and weaknesses of its content and method. Such an evaluation consists of the following: (1) criteria–quantifiable indexes of the change in behavior the program is designed to accomplish; (2) controls–experimental conditions or statistical manipulations to hold constant as many of the variables in the situation as possible; (3) statistical analysis–use of accepted statistical techniques which are appropriate for the criteria; and (4) built-in design–the development of the design for the experimental evaluation, including criteria, controls, and statistics, as an integral part of the training program, not as an afterthought. Accuracy of the evaluation largely depends on adequate criteria, the most difficult of the four requirements to satisfy. Accordingly, a method is presented for testing criteria, which consists of testing their statistical utility, relevance, and reliability. An outline of an experimental evaluation conducted by the B. F. Goodrich Company is presented to illustrate the method. **(187)**

HAGEN, ELIZABETH P. and ROBERT L. THORNDIKE. Evaluation. IN Harris, Chester W. (ed.). **Encyclopedia of educational research.** 3rd edition. New York: Macmillan, 1960. pp. 482-485.

Evaluation is concerned with describing and judging (1) a total school program, (2) curricular procedure, (3) an individual or group of individuals. Three distinct aspects of the process of evaluating are selecting the attributes that are important for judging the worth of the specimen to be evaluated, developing and applying procedures that will describe these attributes truly and accurately, and synthesizing the evidence yielded by these procedures into a final judgment of worth. Research studies in the following areas are discussed: historical background, selecting and defining objectives, instruments for appraising educational products, evaluation and self-evaluation of school programs, and self-evaluation of the individual student. References are included. (Extensive entries on evaluation of programs and services and on evaluation practices and techniques are given throughout this edition of the *Encyclopedia of Educational Research.*) **(188)**

KIRKPATRICK, DONALD L. Evaluation of training. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook.** New York: McGraw-Hill, 1967. pp. 87-112.

With the objectives of clarifying the meaning of evaluation and suggesting evaluation techniques, the author discusses four focal areas for measurement. Measurement may focus on trainee reactions, on knowledge learned, on changes in job behavior, or on tangible results. Techniques and research studies on "in-house" classroom training programs relevant to each area are discussed. A number of sample questionnaires, references, and a brief bibliography are included. **(189)**

KIRKPATRICK, DONALD L. Techniques for evaluating training programs. **Journal of the American Society of Training Directors** 13:11, November 1959. pp. 3-9. 13:12, December 1959. pp. 21-26. 14:1, January 1960. pp. 13-18. 14:2, February 1960. pp. 28-32.

This is a four-part article dealing with successive steps in evaluation: reaction, learning, behavior, and results. *(USCSC 4, edited)* **(190)**

LERDA, LOUIS W. and LESLIE W. CROSS. Performance oriented training–results measurement and follow-up. **Journal of the American Society for Training Directors** 16:8, August 1962. pp. 12-21.

The authors state that if a training need or problem has been accurately determined and clearly stated and if the objectives of the program have been properly defined, the results are measurable. They note that areas for measuring are learning and application, and point out the benefits of their evaluation. Some general principles for evaluating training progress, a guide for evaluating results, and an outline of "factors and techniques for measuring the tangible results of organized training" are included. *(USCSC 4, edited)* **(191)**

LYNTON, ROLF P. and UDAI PAREEK. Support and evaluation. IN THEIR **Training for development.** Homewood, Ill.: Richard D. Irwin, Inc. and The Dorsey Press, 1967. pp. 299-321.

When participants return to work at the end of a training program, both they and the program are under test. The training institution can help participants transfer learnings to the work situation by (1) collaborating with participants and their colleagues in on-the-job projects; (2) counseling participants on their problems from a distance; and (3) offering general refresher courses. Also, it might publish news sheets or sponsor associations through which the participants might share problems and experiences. Such posttraining contacts and services are part of the primary task of the training institution; however, they should be limited to what is required to accomplish the original task effectively. To judge what posttraining contacts are needed requires sound criteria and procedures for evaluating the training process and its results. Of the three most common evaluation measures–numbers trained, participants' reactions, and measures of end-of-course learning–only the latter is promising for this purpose. However, the latter cannot show what really matters: whether participants can use the new knowledge and skill on their jobs. Whether or not training is effective, in the sense that it is used on the job, depends on all three partners in it: the participants, the training institution, and the work organization. In evaluating training, the training institution can seek to learn (1) how effective was the phase in which its responsibility is largest, namely the training program, and (2) how it can best help the other two partners evaluate their parts and improve them. In making these determinations, all aspects of the training program should be assessed with the help of the participants and the work organization. Further, the training objectives need to be periodically evaluated by the work organization to make sure that the program meets current needs. Finally, individual participants can be evaluated. This is best done by the work organization although the training institution might help if the results are to be made known to the participants and used to help in their growth. Shortcomings in the training program that show up at the posttraining phase may be due to four imbalances: (1) input overload which left the participants too excited at the end of the training; (2) unrealistic goals set by participants; (3) alienation from work colleagues created by new learnings; (4) failure to link the program to organizational realities. Actions can be taken during the pretraining and training phases to prevent these imbalances; they cannot be corrected during the posttraining phase. **(192)**

MacKINNEY, A. C. Progressive levels in the evaluation of training programs. **Personnel** 34:3, November-December 1957. pp. 72-77.

Criteria for judging the validity of training evaluations are discussed. Various systems of evaluation include hierarchical levels of quality in results obtained, and these levels are discussed for each system: (1) levels classified according to kinds of behavior being evaluated: the trainee's classroom behavior (lowest level); the trainee's on-the-job behavior; and his subordinate's on-the-job behavior (highest level); (2) objective (higher)–subjective evaluations; (3) formal (higher)–informal evaluations; and (4) Goodacre's three-unit scale (attitude, knowledge acquired, and job performance). The author introduces an alternative classification related primarily to the design of evaluation–the controlled experimental study (highest and recommended); evaluation of trained group only by "before" and "after" measures; and evaluation of trained group only by "after" measures. A system of levels based on relevance of criteria may be superimposed on the design system. It includes objective performance scores (highest level), subjective judgments or estimates of job performance, course achievement measures, and opinions and attitudes about the course or its results. There is a hierarchy within this latter level also: opinions of trainee's subordinates (highest), of trainee's supervisor, of trainee, and of trainer. The conclusion is that evaluation is best at the higher levels, but that compromise procedures are often necessary. The closest approximation possible to the best study design should be the aim. **(193)**

MASSERMAN, CHRISTINE McGUIRE. Teaching vs. learning. **American journal of psychiatry**, vol. 121, September 1964. pp. 221-227.

Evaluation of a training program must show the extent to which the program produces the desired changes in behavior, and it must point out the program characteristics that produce these changes. Scientific procedures for assessing trainees and evaluating programs include the defining of training goals in operational terms; detailed specification of the behavior to be evinced by trainees who achieve the goals; design of test situations that require the trainee to demonstrate the desired behavior under circumstances that also permit inadequate behavior; and objective and reliable methods of recording, measuring, and evaluating trainee responses. **(194)**

McGEHEE, WILLIAM and PAUL W. THAYER. Evaluation of training. IN THEIR **Training in business and industry**. New York: John Wiley & Sons, 1961. pp. 256-285.

The purpose of training evaluation and the procedures needed to achieve that purpose are discussed. Evaluation measures are classified into four types: objective-subjective, direct-indirect, intermediate-ultimate, and specific-summary; the characteristics of each type are described. Characteristics needed by any type of evaluation measure are described as being relevance, reliability, freedom from bias, and practicality. The number of measures to use and when to secure them are discussed. **(195)**

MEIGNIEZ, R. and OTHERS. **Evaluation of supervisory and management training methods, coordination of research.** Paris: Organization for Economic Cooperation and Development, June 1963. 162 pp.

In a report based on European Productivity Agency consultations (1961-1962) on research activities and methods, the relatively brief history and the current state of training evaluation are reviewed, the task of determining objectives and criteria are discussed, types of evaluation instruments (interviews and questionnaires, psychological and knowledge tests, measures of perception, and attitude and rating scales) are noted, the studies themselves are outlined, and methodological aspects of training evaluation set forth. Results of past research suggest that training outcomes depend on numerous complex factors, not least of all the influence of superiors on trainees, that the impact of differing objectives and individual needs makes it unprofitable to compare different training programs as a whole, and that the evaluations made by participants are far from adequate. Therefore, evaluation requires planning, strict experimental design, and a specific focus, and must be done in terms of gains in knowledge, competence, attitudes, and furtherance of company aims. Finally, the various dimensions involved in the thorough integration of evaluation and training should be rigorously tested, clearly defined to facilitate information exchange, and translated into useful measurements. Tables and diagrams, the studies done in several European countries for the European Coal and Steel Community, and 127 references are included. *(ERIC 2, edited)* **(196)**

MILLER, HARRY L. The evaluation of education and training. IN **Self and service enrichment through federal training, an annex to the report of the presidential task force on career advancement** (Distributed by the U.S. Civil Service Commission). Washington: U.S. Govt. Print. Office, 1967. pp. 430-443.

The specification of program objectives as the essential prerequisite for the evaluation process is discussed. The development of tools to measure the achievement of those objectives is described as the technical contribution of evaluation. The goals of evaluation and problems in measurement, including validity, reliability, determination of transfer from training to performance, and control of variables other than training, are discussed. **(197)**

MORGAN, BARTON, GLENN E. HOLMES and CLARENCE E. BUNDY. Evaluation in adult education. IN THEIR **Methods in adult education.** Danville, Ill.: The Interstate Printers and Publishers, 1960. pp. 151-161.

Types of evaluation may be classified according to degree of formality and precision: informal (such as observation, informal tests), semiformal (reliable and valid tests, surveys) and formal (research requiring statistical procedures and special training). The purposes of evaluation are to determine how nearly the goals of individuals and of the class are reached; to measure the students' rate of progress at any given time; to determine the effectiveness of specific teaching materials, methods, and activities; and to provide useful information to the student, the instructor, and the public. Principles of evaluation are: (1) have a definite purpose; (2) use definite and attainable objectives; (3) gather evidence as to changes in people; (4) use different evaluation instruments; (5) assure cooperation between the evaluator and those being evaluated; (6) do not try to evaluate all outcomes; (7) make evaluation a continuous process. Steps in evaluation are: (1) check the objectives; (2) examine what was done to reach the objectives; (3) collect evidence; (4) gather primary evidence from the people taught (either all of them or a reliable sample from large groups); (5) select the most suitable of the following devices: questionnaires, checksheets or schedules, tests or inventories, scales (either standardized or not), records or reports, case histories, experimentation; (6) analyze and weigh the evidence; (7) use findings as a basis for planning programs and methods in talks and discussions, in newspapers and educational publications, in annual reports, for historical records, or to inform supervisors and people in educational institutions who are interested in research. An evaluation of an extension agent's project and a short form for evaluating meetings conclude the chapter. **(198)**

PARNICKY, JOSEPH J. **The evaluation of institutes; a guide for measuring their impact on social work participants.** New York: National Association of Social Workers, 1966. 45 pp.

Developed as an aid for regional social work institute planning committees, and intended to complement the NASW publication, *Manual for Educational Directors and Seminar Leaders* (1954), the procedures outlined are applicable to other groups as well. Oral, written, and observational techniques, both structured and open-ended, are considered, with primary emphasis on written techniques. Chapters are entitled: (1) Introduction and Overview; (2) Planning and Constructing Evaluative Instruments; (3) Scheduling and Conducting Evaluations; (4) Interpreting and Disseminating Results. Appendixes are: (A) Sample of Written Evaluative Instruments (13 are reproduced); (B) Sample of References (21 annotated evaluation references); and (C) Sample of Professional Journals (11 journals containing material on evaluation and social work). [Located too late for indexing.]

POPHAM, W. JAMES and EVA L. BAKER. **Evaluation** (filmstrip-tape program). Los Angeles: Vimcet Associates, 1967. Color, 43 frames, 29 minutes.

This program is designed for teachers, prospective teachers and supervisors of practice or regular teachers at any educational level. The primary objective of the program is that the viewer will subsequently discuss evaluation in terms of using student achievement to measure teacher effectiveness. Specific objectives are that the viewer will be able to: (1) design both formal and informal preassessment procedures when given an objective; (2) construct a test item that measures a given objective; and (3) make defensible inferences from test data that is provided. The accompanying instructor's manual includes a report on validation studies on the program and appropriate quiz questions and answers which may be used as pre- and post-tests. **(199)**

POPHAM, W. JAMES. The product development cycle in the Southwest Regional Laboratory for Educational Research and Development. **National Society for Programmed Instruction journal** 6:9, November 1967. pp. 4-8.

The development of a program entitled Educational Criterion Measures, whose general objective was to broaden the base of educational evaluation, is described. The formulation, objectives, specification, development, and field trial procedures are discussed. Four specific objectives were selected: (1) the learner would be presented with two comparable tests requiring him to list potential criteria measures which might be employed to evaluate a specific educational innovation. One of these assignments would be presented two or more weeks prior to the learner's viewing the program; the second would be presented at least two weeks after the program has been used. It was predicted that a greater variety of measures will be displayed in the postinstructional responses; (2) the learner would be able to distinguish between events and/or procedures which could be employed as criterion measures in educational evaluation and those which could not be so employed; (3) the learner would be able to write without prompts the names of each of the eight classes of criterion measures treated in the program; and (4) the learner would be able to classify properly exemplars of the eight-cell criterion classification scheme described in the program. Tests to measure each objective were formulated, and results are reported in tables with discussion. Results were encouraging since on the basis of only a 48-minute exposure to the program, statistically significant behavior changes in an uncued situation were secured. The program is being produced in printed and filmstrip-audiotape versions which will be field tested. **(200)**

REMMERS, H. H. **How to evaluate training programs in business and industry.** Lafayette, Ind.: Purdue University, n.d. 36 pp.

The booklet introduces the concept of evaluation which is developed as follows: Why Evaluate?, by Robert Mainer; What to Evaluate, by Warren Siebert; Building a Test, by R. E. Horton; Testing the Test, by Paul E. Baker. *(USCSC 4, edited)* **(201)**

RINES, ALICE R. Principles and purposes of evaluation. IN HER **Evaluating student progress in learning the practice of nursing** (Nursing Education monograph no. 5). New York: Columbia University Teachers College, Bureau of Publications, 1963. pp. 7-23.

Evaluation involves the repeated use of a variety of observational techniques. Although it includes measurement, evaluation is broader in scope, requiring also the intellectual act of setting the standard to be achieved. There are eight guiding principles for evaluation: (1) evaluation should be in terms of the objectives (the desired outcomes of the educational program); (2) evaluation must be in terms of observed student behavior; (3) evaluation should take into consideration the behavior that is appropriate for the stage of learning which the student has reached; (4) evaluation should be a continuing process; (5) evaluation should take into consideration the stage of growth and development which the student has reached; (6) evaluation should include all who participate in the educational program; (7) evaluation should be a stimulating force leading to definite improvement in both teaching and learning situations and in the growth and development of students; and (8) evaluation should be in terms of units appropriate to the behavior being measured. Purposes of evaluation include: (1) determining the progress a student is making toward achieving the goals of the program; (2) helping the individual student maintain strengths and eliminate weaknesses; (3) helping the teacher improve teaching; (4) determining the worth of the undertaking in general; (5) clarifying and defining educational objectives; (6) developing more reliable instruments for evaluation; (7) motivating the student; (8) providing psychological security for the students, staff, and community; and (9) providing certification to meet legal requirements. **(202)**

ROSE, HOMER C. Evaluation of the training program. IN HIS **The development and supervision of training programs.** Chicago: American Technical Society, 1964. pp. 204-231.

This discussion of the evaluation process is organized around a pyramid symbolically representing three aspects of evaluation. The first level–The Plan–involves evaluation of instructor qualifications, occupational analysis and training needs, objectives, course of study and lesson plans, instructional materials, training aids and equipment, and examinations. The second level–The Process–includes evaluation of the application of learning-teaching principles, and progress toward objectives indicated by student achievement, attitude, and performance. The third level–The Product–is the periodic evaluation of the performance of graduates on the job. A sample course evaluation questionnaire for use by trainees is included. The controlled research method of evaluation is explained, and two examples of such research are reported: one involving comparison of two instructional techniques for teaching the same context, and the other a project to study the validity of a seven-step procedure for evaluating technical training programs (the procedure was judged valid). Aptitude, attitude and achievement are usually measured by written tests; whereas, procedures, pace, and products are often measured on the job, in the laboratory or shop, and in simulated situations. The importance of valid, specific objectives and pre- and posttraining performance evaluation, are emphasized. **(203)**

SCHULTZ, DOUGLAS G. and ARTHUR I. SIEGEL. **Post-training performance criterion development and application; a selective review of methods for measuring individual differences in on-the-job performance.** Wayne, Pa.: Applied Psychological Services, 1961. 60 pp.

The authors review the current "state-of-the-art" and the techniques used such as production records, interviews and questionnaires, work samples and situation tests, and appraisal of executive performance rating scales. The conclusion is that an "integrating conceptual framework is needed to order and organize the field of measuring individual differences and to provide a more satisfactory basis for evaluating measurement techniques." *(USCSC 4, edited)* **(204)**

SMITH, EUGENE R., RALPH W. TYLER and THE EVALUATION STAFF. **Appraising and recording student progress** (Adventures in American Education, vol. III, by the Progressive Education Association, Commission on the Relation of School and College). New York: McGraw-Hill, 1942. 550 pp.

A plan for evaluating an educational program is presented. The major purposes of evaluation are stated as being to check periodically on the effectiveness of an educational institution in order to discover where the program needs improvement; to validate the hypotheses upon which the institution operates; to provide information for use in guiding individual students; to provide psychological security to the school staff, the students, and the parents; and to provide a sound basis for public relations. The assumptions made by the authors in developing an evaluation program are stated as being (1) that education is a process that seeks to change the behavioral patterns of a human being; (2) that the behavior changes sought are the educational objectives; (3) that an educational program is appraised by finding out the extent to which its objectives are being realized; (4) that human behavior is ordinarily too complex to describe or measure with a single term or a single dimension; (5) that the organization of a student's behavioral patterns should be appraised; (6) that paper and pencil tests are not the only evaluative methods; (7) that the nature of appraisal influences teaching and learning; and (8) that the responsibility for evaluating the school program belongs to the staff and clientele of the school. Chapter titles in Part I, Development and Use of Evaluation Instruments, are: Purposes and Procedures of the Evaluation Staff; Aspects of Thinking; Evaluation of Social Sensitivity; Aspects of Appreciation; Evaluation of Interests; Evaluation of Personal and Social Adjustment; Interpretation and Uses of Evaluation Data; and Planning and Administering the Evaluation Program. Part II, Recording for Guidance and Transfer, contains chapters entitled: Philosophy and Objectives, Behavior Description, Teacher's Reports and Reports to the Home, Form for Transfer from School to College, and Study of the Development of Pupils in Subject Fields. **(205)**

SMITH, ROBERT G., JR. **An annotated bibliography on proficiency measurement for training quality control** (HumRRO research memorandum). Alexandria, Va.: The George Washington University, Human Resources Research Office, June 1964. 27 pp.

This research memorandum is an annotated bibliography prepared as a basis for a manual on quality control in training. The references included in this bibliography are from the following sources: (1) *Psychological Abstracts* from 1954 to present, (2) *Annual Review of Psychology* from 1957 to present, (3) recent books on training and human factors, and (4) *HumRRO Bibliography, Cumulative Supplement.* References are listed alphabetically by author according to five categories: (I) General, (II) Test Manuals, (III) Test Methods, (IV) Quality Control Systems, and (V) Test Development and Description. A total of 101 references are listed. *(ASTD, edited)* **(206)**

SMITH, ROBERT G., JR. **Controlling the quality of training** (HumRRO technical report 65-6). Alexandria, Va.: The George Washington University, Human Resources Research Office, 1965. 41 pp.

This report is designed to provide guidelines for military personnel on the evaluation of training systems. The chapters cover (1) ways of measuring the effectiveness of training, (2) considerations in test development and use, (3) procedures for developing tests, and (4) operation of the quality control system. A 51-item bibliography is included. **(207)**

STAKE, ROBERT E. The countenance of educational evaluation. **Teachers college record** 68:7, April 1967. pp. 523-540.

The two basic acts of evaluation are description and judgment, both of which are essential if educational programs are to be understood. In conjunction with this basic assumption, the author offers a conceptual background for developing a plan of evaluation of educational programs rather than educational products. The need for data banks documenting information on antecedent conditions, transactions, and intents—as well as goals and objectives—is pointed out, and an attempt is made to clarify the guidelines and the rational choice of programs for public schools. Graphs and diagrams are used to illustrate key points. References are included. **(208)**

STAKE, ROBERT E. Testing in the evaluation of curriculum development. **Review of educational research** 38:1, February 1968. pp. 77-84.

The origins of the development of curriculum evaluation as separate from the measurement of aptitudes or accomplishments of individuals are discussed. Differences among present models are pointed out and different methodological strategies growing out of these differences are described. Three issues in measurement methodology are discussed: (1) the question of the centrality of objectives; (2) the question of sampling from the universe of behaviors to be tested; and (3) the question of unmatched testing. Finally, a number of recent evaluation studies are cited. A bibliography is given. **(209)**

TYLER, RALPH W. Achievement testing and curriculum construction. IN Williamson, E. G. **Trends in student personnel work.** Minneapolis, Minn.: The University of Minnesota Press, 1949. pp. 391-407.

Achievement testing is not only an aid to curriculum building but an essential step in the total process. Curriculum building involves four steps: (1) decide on objectives to be sought through the curriculum by tapping three sources: studies of students, investigations of contemporary life, and reports of subject matter specialists; (2) select learning experiences likely to attain the chosen objectives; (3) organize learning experiences so that the cumulative effect of the whole series will be as great as possible in attaining the objectives (with attention devoted to continuing, sequence, and integration); (4) evaluate the effectiveness of the curriculum. Achievement testing serves as a tool to determine effectiveness. The task of achievement test construction provides a continuous reinforcement to curriculum building by helping to clarify objectives. Achievement tests provide devices for making studies of students and contribute to the organization of learning experiences by clarifying needs for sequence and integration. Such testing also contributes to the continuous re-evaluation of the curriculum and the identification of points needing improvement. Finally, it is making a general contribution to the inservice education of teachers by focusing their attention upon the student and his progress rather than inwardly upon the teacher and his particular devices. **(210)**

U. S. CIVIL SERVICE COMMISSION. How to measure results. IN ITS **Training the supervisor; a guide on how to set up and conduct a supervisory training program,** by L. David Korb (Personnel Methods series no. 4). Washington: U.S. Govt. Print. Office, 1956. pp. 94-115.

Evaluation determines how well a training job has been done with respect to supervisory and organizational needs and indicates the resources available to meet these needs. Research methods for evaluating training include intensive observation of small groups, field experiments, and field studies. The field study is the approach most likely to be used for scientific evaluation of training. It involves: definition of the problem to be studied; identification and isolation of the variables to be examined; construction and pretesting of an instrument to measure variables; selection of the group to be studied; measurement; development of standards of performance, or criteria, against which the measured changes may be compared; study of the total setting of the organization; collection and organization of the data obtained; and analysis and interpretation of the results in applying research methods. The evaluator should: (1) use a carefully prepared and pretested evaluation plan; (2) use control groups; (3) obtain measures of performance before and after training; (4) recognize the number of variables that may go into the production of certain results; (5) use sampling techniques and statistical analysis; (6) use methods such as questionnaires and interviews; analysis of organization, production, and personnel records; observation of work behavior by independent observers and observation of interviews with groups; and arrangement of an experimental situation. An evaluation plan should inform management of the results of training; be administratively feasible; provide for a systematic and unbiased means of collecting information; and contribute information that can be used to selectively improve the training program. Four charts on the evaluation of supervisory training are given: (1) Guide to the Evaluation of Supervisory Training; (2) In-course Evaluation of Participant's Progress; (3) Measuring Impact on the Supervisors after Training; (4) Measuring Impact on the Organization. Two sample plans for applying the charts before and after training are given. Prior to training, a list of needs that the course was designed to meet should be prepared. The evidence or problems upon which these needs are based should be recorded objectively, and the manner in which these problems became known should be recorded. After training, evidence of the current nature and extent of the problems previously identified should be examined. Information should be obtained from participants, superiors, and subordinates. Changes should be noted where training has been given and not given. Untrained supervisors constitute the control group and should be matched as closely as possible to the trained men in all pertinent elements. An outline of a practical evaluation plan where training may not have been built upon a detailed needs survey is given. Some evaluation measures are (a) the rating of performance by the superior, and (b) the opinions of the trainees themselves. **(211)**

WEISS, CAROL H. Evaluation of in-service training. IN **Targets for in-service training** (Report of a seminar convened in Washington, D.C., May 4-5, 1967, by the Office of Law Enforcement Assistance and the Joint Commission on Correctional Manpower and Training). Washington, D.C.: The Joint Commission, October 1967. pp. 47-55.

Evaluation as systematic and objective research on the outcomes of training is discussed. Recommendations are made on when and when not to carry out evaluation research. The planning of evaluation is discussed in terms of identifying its purpose and selecting measures of training effectiveness. The following measures are discussed: opinions of trainees, changes in trainees' knowledge, changes in trainees' attitudes, predisposition to practice, changes in job performance and effect on the client. Factors to consider in deciding who should do evaluation research are presented in the answer to a question from the audience. **(212)**

WEISS, CAROL H. Evaluation of staff training. **Welfare in review** 3:3, March 1965. pp. 11-17.

Discussion of three aspects of training evaluation is included: the purposes of the program, uses of results, and how these affect the method of evaluation; relationships between evaluator and trainer; the measures of success that are chosen. *(USCSC 4, edited)* **(213)**

WILSON, CLARK L. On-the-job and operational criteria. IN Glaser, Robert (ed.). **Training research and education.** Pittsburgh: University of Pittsburgh Press, 1962. pp. 347-377.

There is a need for more precise devices for measuring on-the-job performance. The function of this type of measurement is to feed information back to the trainer so that training can be improved. Certain requirements for performance measurements follow from learning theory. The measurement must be: (1) reliable and valid; (2) specific; (3) available to trainer and trainee soon after performance; and (4) frequent. There are three classes of performance measures in order of their specificity: (1) operational performance measures; (2) work samples; and (3) ratings. Operational performance measures which are both highly reliable and specific include measures of (a) tangible products; (b) specific behavior elements; (c) gross performance; (d) inferred performance; and (e) malperformance. Work samples, when reliability can be obtained and when the sample fairly represents the real task, offer useful measures based on tests designed as replicas or segments of the regular job. Ratings represent a departure from the actual on-the-job situation, and their use in training studies is seriously limited by the inability of observers to render sufficiently specific evaluations. **(214)**

WITTROCK, M.C. Statement of intent. **Evaluation comment** (Center for the Study of Evaluation of Instructional Programs). 1:2, May 1968. p. 1.

UCLA's Center for the Study of Evaluation of Instructional Programs (CSEIP) is a Research and Development Center sponsored by the U.S. Office of Education and located in the Graduate School of Education at UCLA. Inquiries are invited.

EVALUATION–SPECIFIC PROGRAMS

ANGELL, DAVID, JAMES W. SHEARER and DAVID C. BERLINER. **Study of training performance evaluation techniques** (Technical report: NAVTRADEVCEN 1449-1). Port Washington, N.Y.: U.S. Naval Training Device Center, 1964. 74 pp.

"The report discusses performance evaluation in the training environment, specifically in training situations involving the use of simulators and other complex training equipment. The important variables involved in developing a system of performance evaluation are seen as: (1) types of behaviors, (2) types of measures or mensural indices, and (3) types of instruments for recording performance. . . . An illustrative application of an automatic training/evaluation system is given." A summary of current Navy proficiency-evaluation methods is included. *(USCSC 4, edited)* **(215)**

ALDRICH, C. KNIGHT and H. BERNHARDT, JR. Evaluation of a change in teaching psychiatry to medical students. **American journal of orthopsychiatry** 33:1, January 1963. pp. 105-114.

"Results of a test constructed to measure the medical student's use of psychiatric information in medical situations indicated that a new sequence of undergraduate teaching in psychiatry combining the seminar-case-study teaching method with a longer period of supervised patient contact . . . (was) slightly but not significantly superior to the old sequence which relied heavily on the lecture method. Grades given to students by psychiatrists as seminar leaders were not significantly correlated with the students' test scores, suggesting that the grades measure something other than the acquisition of information. The grades given by different psychiatrists to the same students in successive years were not significantly correlated. The psychiatrist-teacher relied heavily on his evaluation of the student's report of his relationship with his patient in grading . . . (the) seminar-case-study course." The urgent need for developing practical tools to measure achievement and potentiality in interpersonal relationships for the selection and grading of medical students is emphasized. [Located too late for indexing.]

EDDY, WILLIAM B., DONALD D. GLAD and DONALD D. WILKINS. Organizational effects on training. **Training and development journal** 21:2, February 1967. pp. 15-23.

The effect of a training program upon the behavior of employees may be determined by: (1) content of course material; (2) methods and techniques of presentation; (3) social psychological context of the organization which training is intended to influence; and (4) attitudes, abilities, and interpersonal skills of the trainees. The interactive effects of these factors were analyzed in a study of attitudes of public employees attending a graduate program in public administration. The research was carried out in these four stages: (1) the formation of student groups to define and describe important training areas for evaluation; (2) the content analysis of evaluation reports submitted by student groups; (3) the development and utilization of attitude questionnaires based on the content of student evaluation reports; and (4) analysis of organizational climate in two agencies whose students differed in attitudes about the training program. The findings and observations of the research are further reviewed in their relation to the students' incentives, their opportunities to practice newly acquired behaviors, and reinforcement they received as a consequence of the training. **(216)**

HOWARD UNIVERSITY. CENTER FOR COMMUNITY STUDIES. INSTITUTE FOR YOUTH STUDIES. **Youth counseling institute, training program and research design** (Training report no. 8). Washington, D.C.: The University, April 1965. 19 pp.

The purpose of the Youth Counseling Institute is to assist youth rejected by the Army to improve sufficiently to enter the services, train for a career, or return to school. Fifteen issues which relate to making contact with disadvantaged youth and appropriate techniques of group counseling are listed. This report evaluates the training program for those who work with these youth. The evaluation of the training program was designed to discover the extent to which (1) participating in the training program enables the counselors to relate with youth effectively; (2) learning about the life styles of the poor occurs; (3) learning about group counseling techniques occurs; and (4) the value of using group counseling after training is seen. The appendices include five questionnaires used for evaluation (rating scales, pre- and post-tests of information, and a problem-solving task). **(217)**

JOHNSON, PATRICIA C. and STEPHEN ABRAHAMSON. The effect of grades and examinations on self-directed learning. **Journal of medical education** 42:9, September 1967. pp. 869-870.

This abstract reports an experiment at the University of Southern California School of Medicine. Letter grades were eliminated; only one graded examination, rated "satisfactory" or "unsatisfactory," was to be given. It was predicted that students would become more self-directed in their study and there would be less cramming for examinations. Students were interviewed and tested in the spring of each year for three years. They reported that they were doing more assigned and unassigned reading and more studying and that they were cutting fewer classes. It was concluded that students show an increase in self-directed study as they progress through medical school. **(218)**

KLAUS, DAVID J., DORIS E. GOSNELL, M. JOYCE CHOWLA and PAMELA A. REILLY. **Controlling experience to improve nursing proficiency: determining proficient performance** (Report no. 3 AIR-E77-2/68-TR). Pittsburgh: American Institutes for Research, February 1968. 46 pp.

This report–the third in a series of reports on improving nursing proficiency by controlling clinical experience–describes an approach for identifying or specifying the components of proficient performance for any nursing task and for assessing how proficiently the task is performed. Specific techniques described, illustrated, and discussed are indicated by chapter and section headings: (I) Introduction; (II) Describing Performance (Problems of Description, Task Enumeration, Illustrative Task Enumeration, Task Analysis, Illustrative Task Description); (III) Establishing Proficiency Standards (Qualitative Aspects of Proficiency, Critical Incident Technique, Background Components of Proficiency); (IV) Proficiency Measurement (Representative Test Formats, Simulation); (V) Discussion; (VI) Summary. There is a 14-item bibliography. **(219)**

MAHONEY, THOMAS A., THOMAS A. JERDEE and ABRAHAM KORMAN. An experimental evaluation of management development. **Personnel psychology** 13:1, Spring 1960. pp. 81-98.

The Management Development Laboratory of the Industrial Relations Center at the University of Minnesota used an experimental approach to evaluate the training program of a large industrial organization. The objectives of the training program were to communicate knowledge and understanding of the principles of management, to develop the ability to apply a special analytical approach to the solution of managerial problems, and to develop an appreciation and sense of personal responsibility for self-development. Case analysis and group discussion, supplemented by reading and occasional lectures, were used in the training. The evaluation was designed to determine if the course attained its objectives and if the involvement of a participating manager's superior contributed to the attainment of the objectives. A management practices quiz, case analyses, and an attitude scale were used to measure changes in factors related to the stated objectives of the course. Results showed that the course did not entirely meet the objectives; they further disclosed that the case approach and the boss-involved approach were not entirely effective and raised doubts as to the value of the analytical approach taught in the course. **(220)**

MEISSNER, FRANK. Measuring quantitatively the effect of personnel training: an experiment in food retail stores. **Training directors journal** 18:3, March 1964. pp. 37-38, 40-46, 48-49.

The author describes a "bagsmanship" training program sponsored by Crown Zellerbach Corporation and concludes that (1) valid quantitative measurements of a personnel training program are possible, and (2) training input-output coefficients may be useful management tools for both retail firms and public policy-makers. *(USCSC 4, edited)* **(221)**

MIRAGLIA, JOSEPH F. Human relations training. **Training and development journal** 20:8, September 1966. pp. 18-25.

Research to determine on-the-job effects of human relations training is critically reviewed and classified under the following categories: (1) descriptive evaluation of course effects on trainees back-on-the-job; (2) quasi-experimental evaluation of impact of course content on trainees (without control group); (3) experimental evaluation of impact of content on trainees (with control group); and (4) experimental evaluation of course effects on trainees–including on-the-job behavior. It is pointed out that evaluations of human relations training on job performance are usually poorly executed because of (1) lack of valid and reliable human relations measuring instruments; (2) unwillingness of organizations to experiment in these "sensitive" areas; (3) knowledge that these supervisory skills change very slowly; (4) difficulties inherent in investigating and controlling the dynamic interaction of any organization; and (5) the problems created by an always changing organizational atmosphere. **(222)**

MODLIN, HERBERT C. An evaluation of the learning process in a psychiatric residency program. **Bulletin of the Menninger Clinic** 19:5, September 1955. pp. 139-160.

In 1951 the Menninger School of Psychiatry Executive Committee authorized the appointment of a Committee on Educational Research to devise evaluative methods which would supplement written reports from clinical supervisors. A method was needed to measure the learning of students and thus to indicate the value and the effectiveness of the program. The committee agreed that such a method should (1) provide data different from those contained in supervisors' reports, (2) produce results that could be quantified and statistically measured, (3) specifically evaluate the didactic program, and (4) realistically fit staff and budget limitations. It was proposed that written examinations be given annually, beginning in 1952. Details of the investigation of such examinations are reported. It was concluded that the comprehensive annual written examinations quite clearly differentiated first, second, and third year trainees; demonstrated the quality and quantity of professional change and growth which occurred from year to year; and were useful for checking the efficacy of the curriculum and for changing aspects of the teaching. [Located too late for indexing.]

MONROE, RUSSELL. Techniques for evaluating the effectiveness of psychiatric teaching. **American journal of psychiatry** 122:1, July 1965. pp. 61-67.

This paper reports work at the University of Maryland on devising methods of examination for clinical skills. Emphasis is on using the tests to evaluate the effectiveness of teaching. Specific techniques discussed are: (1) short-answer, multiple-choice tests; (2) the giving of separate examinations in clinical evaluation, psychotherapeutic techniques, and factual knowledge to provide a profile of competency for each student, highlighting his strengths and weaknesses, and providing a guide for instructors involved in the small-group, tutorial educational system in the clinical years; and (3) using available movies and rating scales standardized on trained personnel as a way of measuring student capabilities and for interschool comparison. It is hoped that such procedures can be designed so that the practice effect will be minimal and that the same exam can be repeated at least once during the four-year medical school curriculum so as to evaluate the effectiveness of psychiatric teaching. [Located too late for indexing.]

NEWMARK, GERALD, RALPH MELARAGNO and HARRY SILBERMAN. **The development of criterion-referenced tests in four skills for field testing three approaches to teaching Spanish in elementary schools** (TM-3063). Santa Monica, Calif.: System Development Corporation, 1966. 57 pp.

The tests used in the California State Department of Education Spanish Research Project D-177 are described. Studied and assessed were: (1) instruction by a qualified foreign language teacher; (2) programmed self-instruction; and (3) instruction by television. The 28 criterion-referenced tests developed to measure listening comprehension, speaking, reading, and writing, depend on an absolute standard of quality rather than on a relative standard. They were designed to ascertain the extent to which each student achieved the specific objectives of his language course. It was discovered that these absolute assessment procedures permit greater objectivity in evaluating achievement and provide a basis for making decisions about selecting a language course, developing improved materials, modifying learning conditions, and revising course objectives. In the report are detailed descriptions of the tests, including construction procedures, administration, scoring, and statistical characteristics. **(223)**

PEARSON, JUDSON B. (ed.). **The analysis of short-term seminars in psychiatry for non-psychiatric physicians: a progress report for the years 1963-1966.** Boulder, Colo.: Western Interstate Commission for Higher Education, 1966. 65 pp.

The differences in evaluative results between the questionnaire analysis of eight seminars in 1963-1964 and ten seminars in 1964-1965 are described. Specimen questionnaire forms are included. In the evaluation of any program there are two basic questions that must be answered: What does the program accomplish, and how does the program accomplish it? The successful seminar for non-psychiatric physicians first transfers the level of communication from abstract discourse to concrete information exchange. Presentation of case studies helps the seminar members establish a commonality of meanings emerging out of a mutuality of concrete experiences. After a language of commonality is established, the conceptual framework of most seminar members is identical enough that mutuality of meaning at the abstract level will be approximately equal. On the abstract level, role obligations can be presented in such a way that the physician becomes self-reliant in his newly acquired role. Numerous variables must be taken into consideration for thorough evaluation: instruction, methods, participants (different motivations and interests), and the goals of the course. Different types of evaluation should be applied to the same subject to help obtain a clear picture of the many facets of that subject. **(224)**

RINES, ALICE R. **Evaluating student progress in learning the practice of nursing** (Nursing Education monograph no. 5). New York: Columbia University Teachers College, Bureau of Publications, 1963. 76 pp.

The material presented is based on a project carried out by the author in partial fulfillment of the requirements for the degree of Doctor of Education. As a part of the project, the literature of nursing education, general education, and educational psychology was reviewed, and instructors attempting to apply evaluation theory were interviewed. The study is concerned only with the learning that takes place in the actual nursing situation and with the evaluation of that learning; evaluation in the usual classroom setting is not considered. Theories of learning and their application to the learning of the practice of nursing are discussed; a concept of evaluation in relation to the way students learn is developed; and ways in which that concept might be used to assess the progress of students in the practice of nursing are proposed. Chapter headings after the introduction are: (2) Principles and Purposes of Evaluation; (3) Tools of Evaluation (in which the anecdotal record, the checklist, the rating scale, student self-evaluations, and patient observations are discussed); (4) Evaluation and Learning; (5) Proposals for a Program of Evaluation; and (6) Summary, Conclusions, and Implications. There is a 4-page bibliography. An appendix contains the Interview Guide used to question nurse instructors about evaluation procedures. **(225)**

U. S. DEPARTMENT OF THE NAVY. **Training feedback information requirements and methods in the research, development, test, and evaluation of Navy systems** (Report no. ND 65-4, prepared by Dunlap and Associates under Contract Nonr 4167 00). Washington, D.C., 1964.

A study made to determine the relation of training feedback process to effectiveness of current training evaluation programs is presented. Technical and management recommendations for improving training feedback are included. *(USCSC 4, edited)* **(226)**

VIGLIANO, ALDO and MANGESH GAITONDE. Evaluation of student performance in a clinical psychiatry clerkship. **Journal of medical education** 40:2, February 1965. pp. 205-213.

The study reported made use of data gathered during the operation of a regular psychiatry clerkship program for senior medical students. The specific purpose of the study was to achieve some form of explicit formulation of those implicit criteria on which the psychiatry faculty based the generic ratings of "satisfactory," "superior," and the like, traditionally used in describing student performance. The study attempts to show that a faculty's criteria of student evaluation need not be regarded as too abstract, too personal, or too elusive to be subject to systematic investigation. Such investigations may well lead to useful outcomes. They may highlight flaws in existing student evaluation processes and permit a reorganization of a faculty's evaluative approach. [Located too late for indexing.]

WAKELEY, JOHN H. and MALCOLM E. SHAW. Management training–an integrated approach. **Training directors journal** 19:7, July 1965. pp. 2-13.

The evaluation of the use of the laboratory method and simulation in the training program of a new plan is described. The guidelines for the training program required that the training should be as real as possible and that the staff should function interdependently in their new roles. The participants, time, setting, financial and operating data, organization and interpersonal relationships, and problems of the program are outlined briefly. Four different surveys were conducted to evaluate the program: trainees, trainers, trainees two months later, and before and after comparisons. These ratings were on acquaintanceship, anticipated contact, personal effectiveness, and performance effectiveness. Results of these four evaluations are discussed. **(227)**

ZABARENKO, LUCY. Education of the graduate physician: attempts at evaluation. **American journal of psychiatry** 122:5, November 1965. pp. 500-504.

Challenges to evaluative research cluster in four areas: goals, sampling, instrumentation, and methodology. Twelve evaluative studies of continuing education in psychiatry are mentioned. The best way to advance evaluation is to make use of a properly balanced interdiscipline research team. **(228)**

EVALUATION–SPECIFIC METHODS

Simulation in Evaluation

LEVINE, HAROLD G. and CHRISTINE McGUIRE. Role playing as an evaluative technique in a certifying examination. **Journal of medical education** 42:3, March 1967. pp. 264-265.

New evaluative techniques developed by the Center for the Study of Medical Education at the University of Illinois and a major specialty board as part of a continuing project in the analysis of the development of professional competence are reported. Three of these techniques required the examiner, the candidate, or both to role play during parts of the examination: the simulated diagnostic interview, the simulated proposed treatment interview, and the simulated patient management conference. **(229)**

LEVINE, HAROLD G. and JOHN R. NOAK. The validity and reliability of oral simulations as evaluation techniques. **Journal of medical education** 42:9, September 1967. p. 882.

A study which explored the question of whether simulation techniques in medical education possess construct and concurrent validity as well as acceptable reliability is discussed. The simulations studied were oral role-playing exercises which required the examinees to simulate physicians and to interview examiners who were programmed to simulate patients. This study suggests that some oral simulations have sufficient reliability and validity to serve as valuable tools for assessing heretofore neglected areas of competence in medicine. **(230)**

LEVIT, EDITHE J. The use of motion pictures in testing the clinical competence of physicians. **Annals of the New York Academy of Sciences** 142:2. pp. 449-454.

The National Board of Medical Examiners has developed a technique using motion pictures for evaluation of physicians' abilities to make appropriate and accurate observations of a patient and to translate and integrate these visual impressions into an understanding of the medical problem at hand. In order to control the two variables of the patient and the examiner and hence to provide a more valid examination, a film of a standardized patient and multiple-choice questions relating to the clinical problem are substituted for the actual patient and medical examiner used in traditional testing. The types of skills that can be tested by use of motion pictures and the distinction between the testing film and the teaching film are discussed. The six steps described for producing a film are: (1) selecting the patient and planning the film, (2) filming, (3) creating questions and initial editing, (4) review by a panel, (5) final editing and printing, and (6) administering the film test. **(231)**

Observations

HINZ, CARL F., JR. Direct observation as a means of teaching and evaluating clinical skills. **Journal of medical education** 41:2, February 1966. pp. 150-161.

In the study described, student performance during medical history taking and physical examination was observed and rated by trained physician observers. The rating scale used was designed to elicit judgments not only as to whether certain items of behavior occurred, but also as to whether they were appropriate in the particular situation. The rating scale is presented and its development and use are discussed. Results of the study are described as showing that the method of direct observation was valuable for both teaching and evaluation, because it provided feedback to the students and revealed aspects of their performance not otherwise visible. There are four references. **(232)**

MEDLEY, DONALD M. and HAROLD E. MITZEL. A technique for measuring classroom behavior. **Educational psychology**, vol. 49, 1958. pp. 86-92.

The Observational Schedule and Record (OScAR) was developed for use by a classroom observer. It directs the observer's attention to and serves as a recording instrument of certain behaviors of teachers and pupils. An analysis was made of its use in a series of 588 half-hour visits by six observers visiting 49 teachers twice each. Items which, on the basis of content, appeared to belong together were grouped into 14 keys which were found to have reliabilities of at least .60. A factor analysis identified three statistically independent factors accounting for most of the observed differences.

The three aspects in which the behaviors observed in the 49 classrooms differed were: emotional climate, the relative amount of hostility observed; verbal emphasis, the relative degree to which traditional schoolroom activities were emphasized; and social structure, the relative amount of pupil-initiated activity. It was concluded that relatively untrained observers using an instrument like OScAR can develop reliable information about differences in classrooms of different teachers, that the OScAR technique is sensitive to only three of many dimensions that probably exist, and that observations made with instruments of this type can contribute to the solution of many important problems having to do with the nature of effective teaching. **(233)**

MEDLEY, DONALD M. and HAROLD E. MITZEL. Measuring classroom behavior by systematic observation. IN Gage, N. L. (ed.). **Handbook of research on teaching.** Chicago: Rand McNally, 1963. pp. 247-328.

Direct observation of the teaching process is stressed as being important for the discovery of the effects of teaching on pupil learning. Methods of sampling classroom behaviors, of recording the behaviors observed, and of scoring the recorded behaviors are reviewed. A 74-item bibliography is included. **(234)**

Ratings

BARBEE, ROBERT A., SOL FELDMAN and LOUIS W. CHOSY. The quantitative evaluation of student performance in the medical interview. **Journal of medical education** 42:3, March 1967. pp. 238-243.

A study in which members of the medical faculty rated audiotape recordings of ten medical students taking present-illness histories is described. The first two and last two interviews of each student were rated, both for information obtained and for technique. Results showed better average ratings on the last interview than on the first. When tapes were rated a second time six months later, the ratings on information obtained agreed highly with the original ratings, but on technique they showed little agreement with the original ratings. Abridged versions of the forms used are presented. Two references are cited. **(235)**

BLUMENFELD, WARREN S. Interrater reliability: a brief empirical reminder. **Training directors journal** 19:6, June 1965. pp. 17-20.

An empirical test of a form for rating conference leadership is described. Low interrater reliability (coefficient of .59 for 15 raters) was found. Possible reasons for this result are discussed. Conclusions are that more attention must be given to interrater reliability when rating forms are used to evaluate complex behaviors. Six references are included. **(236)**

CRATTY, BRYANT J. The assessment of teacher sensitivity. **California journal of educational research** 13:2, 1962. pp. 73-77.

This article presents a method for evaluating teacher sensitivity using a device for matching the relative emphasis teachers and pupils place upon various motivational factors. This method derives its value from the research of Fogg who found a significant and positive relationship to exist between sensitivity to student reactions and classroom teaching success. The technique presented here involves careful selection of various factors which may influence pupil learning in a specific situation. After these factors are listed, each student is asked to weigh the degree to which each aids him to do his best in the learning situation. The teacher is asked to list the average weight given by the students on each factor. It is assumed that attitudes are measurable and vary along a linear continuum and that it is desirable and valid to measure group attitudes. Furthermore, it is felt that this process enables the teacher to engage in meaningful self-assessment and positive self-improvement. Moreover, it affords the students an opportunity to express themselves concerning the types of activities which are carried out in their learning environment and to suggest new activities. *(ASTD)* **(237)**

GEERTSMA, ROBERT H. and JOHN E. CHAPMAN. The evaluation of medical students. **Journal of medical education** 42:10, October 1967. pp. 938-948.

The University of Kansas School of Medicine uses a system of evaluation in which each student is rated in all major courses as superior, satisfactory, or unsatisfactory on 11 cognitive and non-cognitive dimensions. In order to assess the functioning of this system, all evaluations given to two consecutive classes of students (180 in all) were subjected to (1) factor analysis of the ratings on the evaluative dimensions; (2) frequency counts of superior and unsatisfactory ratings for preclinical and clinical years; and (3) tabulation of the distribution of low and high records by courses. The major findings follow: (1) the ratings of the dimensions are highly interrelated; (2) instructors have a tendency to give unsatisfactory ratings on cognitive dimensions and superior ratings on non-cognitive dimensions; and (3) clinical instructors are more favorable in their evaluative stance than preclinical faculty. **(238)**

GLASER, ROBERT, DORA E. DAMARIN and FLOYD M. GARDNER. The tab item: a technique for the measurement of proficiency in diagnostic problem-solving tasks. **Educational and psychological measurement** 14:2, Summer 1954. pp. 283-293.

The development of a type of test item designed to simulate electronic "troubleshooting" behavior on paper is described. A tab item measuring this behavior describes a symptom of equipment malfunction and lists a series of check procedures that might be used to find the cause of the symptom, the results (under tabs) that would be obtained if each procedure were carried out, and the components that, if defective, might cause the symptom described. The examinee is told to locate the defective component by "carrying out" as few check procedures as possible. To "carry out" a procedure he lifts the tab covering the results he would obtain if he actually carried out the procedure. The construction and scoring of the tab item and problems of application are also discussed. **(239)**

REMMERS, H. H. Rating methods in research on teaching. IN Gage, N. L. (ed.). **Handbook of research on teaching.** Chicago: Rand McNally, 1963. pp. 329-378.

Rating scales are classified as numerical, graphic, cumulated-points, checklists, or forced-choice. Examples of each type are shown, along with a discussion of its characteristics, procedures for construction and scoring, and advantages and disadvantages. Several of the more sophisticated scales are described in depth. These include sociometric methods, the semantic differential, Q-technique ratings, and self-anchoring scaling. Practical and theoretical matters related to the use of rating scales are also discussed. **(240)**

SALZMAN, LEONARD F. and JOHN ROMANO. Grading clinical performance in psychiatry. **Journal of medical education** 38:9, September 1963. pp. 746-751.

A rating scale for grading the clinical psychiatric performance of medical students was developed as an important aspect of their evaluation during the clinical clerkship. The student is rated separately in 10 categories, on a 9-point scale. A composite grade is obtained, giving greater weight to the judgment of senior, more experienced faculty, among those who perform the ratings. The data suggest the scale is better able to obtain normal distribution of grades than were earlier, more subjective methods. There is tentative data suggesting the method is reasonably reliable, and that it correlates meaningfully with other measures of knowledge of psychiatry. [Located too late for indexing]

TORGERSON, WARREN S. Classification of scaling methods. IN HIS **Theory and methods of scaling.** New York: John Wiley & Sons, 1958. pp. 41-60.

A considerable number of procedures have been devised to enable social scientists, psychometricians, and psychophysicists to determine scale values of a series of objects, events, or individuals with response to some attribute. The development of an inclusive framework within which the different methods can be classified is the topic of this chapter. Major sections are: (1) Introduction; (2) Principal Ways in Which the Procedures Differ; (3) Three Broad Approaches to Scales; (4) Judgments Versus Responses; (5) The Determination of Order; (6) Judgment Methods; and (7) Response Methods. [Located too late for indexing]

WICKER, IRVING B., JR. Errors in rating. **USAF instructors journal** 5:2, Fall 1967. pp. 19-23.

If a rating or evaluation is to serve its purpose, it must be as objective as possible. Four major errors in rating and evaluation are defined, illustrated, and discussed: (1) logical error–the tendency to give similar ratings to two or more traits which are logically related in the mind of the rater; (2) error of standards–the tendency to overrate or underrate everyone as compared with the averages of other raters; (3) error of central tendency–the tendency to group ratings about the average point and avoid extreme ratings either high or low; and (4) halo error–a general or overall impression which affects the rating of specific traits. **(241)**

Pre- and Post-Testing

HALEY, HAROLD B. Pretesting and repeat testing as tools in teaching. IN Abstracts/Conference on Research in Medical Education. **Journal of medical education** 42:3, March 1967. p. 266.

Pretesting at the beginning of a course of study can serve to: (1) establish student objectives by emphasizing areas which should be mastered during the course of study, (2) define for the teacher the general level of class knowledge to which he should direct his teaching, (3) provide specific points of reference based on pretest answers, (4) give the teacher insight into student attitudes, and (5) formally open dialogue between students and teacher. The simplest technique is to pretest, use the answers to direct teaching, then retest to measure the increment of learning. A later retest can measure retention, immediate or long-term. The technique may be broadened to measure the student's development of concepts or insight into relationships. For example, two or more seemingly unrelated items in the pretest are shown to be related during the course. The retest then measures the student's understanding of the relationship.

These techniques, used intuitively by teachers, have had minimal analysis or study in the medical or general educational literature. They can be adapted to many different circumstances to accomplish many different objectives. Some results of the application of these techniques in a lecture course in oncology with two successive junior classes are outlined. (242)

HARMON, FRANCIS L. and ALBERT S. GLICKMAN. Managerial training: reinforcement through evaluation. **Public personnel review** 26:4, October 1965. pp. 194-198.

"A new approach to determining the effectiveness of a training program is described in which the evaluation process is used to encourage positive reinforcement of what has been learned." In answer to the common question "are our management training courses worthwhile?" the authors examine tangible evidence of training effects on job performance. Their method of evaluation is demonstrated on a five-day management training course in which 54 middle and upper management men participated. Participants were surveyed by a trainee set and a supervisor set of three open-end questionnaires which were constructed for administration prior to training, immediately after training, and eight to ten months after training. The results of the survey seemed to support the assumption that the method can yield objective evidence that is susceptible to statistical analysis, and that the information obtained is relevant to the practical objectives of industrial and governmental training. *(ASTD)* (243)

KIRKPATRICK, DONALD L. How to start an objective evaluation of your training program. **Journal of the American Society of Training Directors** 10:3, May-June 1956. pp. 18-22.

The purpose of the article is to suggest a specific technique for beginning an objective evaluation of a training program. The technique involves four evaluative processes designed to answer the most basic pertinent question: Have the desired facts and principles been learned by the trainee? The four processes are: (1) using a suitable paper and pencil test; (2) testing the trainee before and after the program; (3) determining the overall effectiveness of the course by comparing pretest and posttest scores for each trainee; and (4) determining which specific facts and principles were learned by analyzing the changes on each test item from pretest to posttest. An explanation of the computation of mean gain and the chi square formula are included. (244)

LINCOLN, RICHARD E. **A comprehensive procedure for pre- and post-test construction** (Paper presented at the Fifth Annual Convention, National Society for Programmed Instruction, April 19, 1967, Boston, Mass.). Atlanta, Ga.: National Communicable Disease Center, 1967. 7 pp.

In constructing a test, a rigorous attempt should be made to identify and respond to the critical components of each training objective and to use test items which are appropriate and discriminating. The procedure outlined ensures: (1) certainty that all relevant topics within a given area have been considered; (2) balanced coverage and weighting needed for each topic; (3) appropriate test item types; and (4) fundamentally sound test items which have been designed to discriminate. Ten specific steps in the procedure for pre- and post-test construction are outlined and discussed. (245)

Critical Incidents

BAILEY, JUNE TEIG. The critical incident technique in identifying behavioral criteria of professional nursing effectiveness. **Nursing research** 5:2, October 1956. pp. 52-64.

The purpose of the study on which this article was based was twofold: (1) to identify, objectively, behavioral criteria of the effective or successful professional graduate staff nurse by means of the "critical incident" technique, which consists of collecting a comprehensive list of observed behaviors from individuals who are the most competent to make judgments about the worker being investigated; and (2) to investigate to what extent patients and the medical team, i.e., doctors, head nurses, and clinical instructors, vary in these judgments relative to professional nursing effectiveness. The topic headings and subheadings describe the contents: Nature and Background of the Study (studies relative to predicting nursing success, status of evaluation procedures in nursing schools, the present study defined); Design of the Study (the critical incident technique, universe of critical incidents, the interviewing program); Analysis of the Data (initial treatment of interview data, examples of incidents supplied by resource personnel, organizing and classifying the behaviors, defining areas and subareas, behavioral criteria, statistical analysis); and Summary and Conclusions (limitations of the study and recommendations). A list of references is included. (246)

FIVARS, GRACE and DORIS GOSNELL. **Nursing evaluation: the problem and the process; the critical incident technique.** New York: Macmillan, 1966. 228 pp.

The critical incident technique is described and applied to (1) the identification of the objectives in a school of nursing; (2) curriculum development and the organization of learning experiences; (3) evaluating the performance of students and practitioners; and (4) relating performance to professional standards. Chapters are: (1) Why Study Nursing Behavior?; (2) The Critical Incident Approach to Problems in Nursing; (3) The Critical Requirements Approach to Establishing Objectives in a School of Nursing; (4) Using Critical Incidents to Define Behaviors; (5) Developing Curriculum Objectives and Learning Experiences Consistent with Critical Requirements in Nursing; (6) Evaluation in Terms of Objectives; (7) Evaluation in Terms of the Task (including the task analysis approach); (8) The Tools of Evaluation; (9) Evaluation in Terms of Performance; (10) Evaluation in Terms of Professional Standards. Appendix I, Critical Requirements for Selected Fields, contains lists of requirements for social case workers, interns and residents, and orthopedic surgeons. Appendix II lists expected student-nurse behavior in selected clinical areas (based on course objectives). Appendix III lists performance descriptions for selected nursing tasks. There is an index. [Located too late for indexing]

FLANAGAN, JOHN C. The critical incident technique. **Psychological bulletin** 51:4, July 1954. pp. 327-358.

The historical background, early developments, and present form of the critical incident technique are discussed. A review of various developmental studies in the technique is also included. The critical incident technique consists of a procedure for collecting and analyzing directly observed incidents of human behavior having special significance and meeting systematically defined criteria. The procedure has five steps: (1) determination of the general aim of the activity; (2) development of plans and specifications for collecting factual incidents regarding the activity; (3) collection of the data; (4) analysis of the data; (5) interpretation and reporting of the statement of the requirements of the activity. Each step is discussed in detail. Applications of the critical incident technique in the following areas are discussed: measures of typical performance (criteria); measures of proficiency (standard samples); training; selection and classification; job design and purification; operating procedures; equipment design; motivation and leadership (attitudes); counseling and psychotherapy. A list of 74 references is included. **(247)**

FULLERTON, DONALD R., PHILIP R., A. MAY and RUTH WHITE. The unusual occurrence report: a teaching and therapeutic device. **Journal of psychiatric nursing** 3:3, May-June 1965. pp. 258-268.

An "unusual occurrence" form used in a psychiatric hospital to report incidents for the purposes of teaching and better understanding is described. It may be used in the inservice education of psychiatric residents and nurses. The form was designed to avoid the implication of blame and retribution. **(248)**

GLICKMAN, ALBERT S. and T. R. VALLANCE. Curriculum assessment with critical incidents. **Journal of applied psychology** 42:5, 1958. pp. 3-9.

This investigation explores the use of critical incidents for assessing the relevance of various aspects of a training program to the job performance requirements of its graduates. Specifically it involves the relevance of the subject matter taught in the Navy's Officer Candidate School to the duty requirements of new officers aboard destroyer-type ships. An earlier study provided basic data for description and operational definitions of critically significant elements. A Junior Officer Training Requirement Checklist was sent to 340 commanding and executive officers of destroyer-type ships and was completed by 301 officers. The checklist was prepared in ten forms of approximately 100 items each and sent to from 30 to 50 officers with instructions to make a judgment for each incident as to "How soon after his reporting aboard, under normal conditions, would you expect the new officer to be able to handle the situation to your satisfaction." The findings indicate that the new ensign most frequently and most immediately will be called on to draw on background relevant to human relations, leadership, and personnel administration skills. *(ASTD)* **(249)**

HERZBERG, FREDERICK, SCOTT INKLEY and WILLIAM R. ADAMS. Some effects on the clinical faculty of a critical incident study of the performance of students. **Journal of medical education** 35:7, July 1960. pp. 666-674.

A critical incident study designed to improve evaluation of clinical training by developing criteria of student performance and by educating the faculty in their use is described. Five principles of performance evaluation which appeared to have been learned and accepted by faculty participating in the study are: (1) evaluation is a continuous process based on an accumulative record; (2) the critical incident procedure helps the evaluator recognize clearly the intrusion of the "halo" effect on his general impression of student performance; (3) the critical incident procedure helps to prevent the use of generalities as a way of escaping making a judgment; (4) the critical incident procedure helps eliminate the confusion of superficial personality traits and performance by emphasizing behavioral events; and (5) the procedure reduces the evaluator's natural reluctance to judge other people by its requirement that he simply record what the student did. Other substantive effects of the study on the clinical faculty are discussed. Five references are given. **(250)**

How to get better trainee performance appraisals through the "critical incident" technique (Training methods 10). **The training workshop**. Waterford, Conn.: Bureau of Business Practice, 1967. 4 pp.

Supervisors have trouble accurately rating their trainees since they rarely have time to observe them closely. They can solve this problem by noticing and recording the trainees' performance in critical incidents. A critical incident is usually something an employee does or fails to do which illustrates either outstanding or unsatisfactory job performance in the critical areas of work habits, physical qualifications, mental qualifications, personal characteristics, and temperament. Examples of both satisfactory and unsatisfactory critical incidents are given, and a sample form that can be used to record critical incidents is reproduced. Suggestions for dealing with various reactions of trainees to their job performance ratings conclude the article. **(251)**

MAYESKE, GEORGE W., FRANCIS L. HARMON and ALBERT S. GLICKMAN. What can critical incidents tell management? **Training and development journal** 20:4, April 1966. pp. 20-34.

The use of critical incidents in the U.S. Department of Agriculture's Management of Human Resources program is described. Critical incidents involve the reporting of observed actions or behaviors that are judged to have been significantly effective or significantly ineffective. A critical incident is not an evaluation of a person; it is a report of what action took place and of its consequences. Examples of forms used in collecting critical incidents and summaries of information gotten from their analysis are presented. Critical incidents are described as providing information that is unbiased and objective and that is more precise, more specific, and more relevant to the job than information obtained by more traditional methods. This method is said to contribute to management by creating more effective communication, more effective supervision, improved quality of training, and better motivation and morale. **(252)**

NAHM, HELEN, DOROTHY M. SMITH and RUTH E. HUNTER. Evaluating student progress in clinical experience. **The American journal of nursing** 50:5, May 1950. pp. 309-311.

The "anecdotal record" method of evaluating student progress in clinical experience was instituted at the Duke University School of Nursing. The method replaced the "efficiency record" method, a procedure for evaluating students by listing a number of traits (such as skills or attitudes) believed to be important in nursing and descriptions of behavior corresponding to these traits. (An example is given.) Described is the "anecdotal record" method, its rationale, the administrative procedures found necessary for its implementation, and the makeup of a "Committee on Evaluation of Student Progress" at the school. Examples of anecdotes describing students' behavior are included. **(253)**

EVALUATION–SPECIFIC DEVICES

ADLER, LETA McKINNEY and ALLEN J. ENELOW. An instrument to measure skill in diagnostic interviewing: a teaching and evaluation tool. **Journal of medical education** 41:3, March 1966. pp. 281-288.

An experimental use of the Psychotherapy Interaction (PIA) Scale as both a teaching tool and a research instrument is reported. The scale has the following major characteristics: (a) the conceptual basis of the scale concerns primarily the interpersonal process rather than the content of the interview; (b) the scale minimizes inferences about the subjects' intrapsychic processes; (c) it codes all acts–verbal and nonverbal–of both parties in the interaction; (d) it is suitable for scoring line therapy sessions; (e) it includes codes for standard psychotherapeutic interventions; (f) it does not include built-in ratings of psychotherapeutic effectiveness. The study was conducted as part of a six-month seminar in diagnostic interviewing for third-year residents in psychiatry. As part of the seminar each resident practiced diagnostic interviewing in front of the group. The PIA Scale was used to provide scores and profiles on the interview behavior of both the residents and the patients interviewed. This information in turn was used as a teaching tool during the class discussions. The study attempted to provide information about two research problems: (1) did the seminar increase a resident's ability to conduct a diagnostic interview? and (2) did the PIA Scale provide evidence in support of the theory on which instruction was based? The study is reported under the headings: Teaching Goals; Method: Research Setting and Measurement of Interview Behavior; Evaluation of Learning Gain; Test of the Premises of Instruction; Discussion and Conclusions. The study illustrates possible uses of the PIA Scale, and results suggest that further testing and refining of the PIA Scale and scores derived from it are justified. Samples of the PIA Scale are included. **(254)**

CURETON, EDWARD E. The rearrangement test. **Educational and psychological measurement** 20:1, Spring 1960. pp. 31-35.

Areas in which the rearrangement test might be used to measure knowledge of the order of a series of persons, objects, events, operations, or concepts with respect to some attribute are discussed. A procedure for scoring these tests based on Spearman's Footrule is presented. Two references are cited. **(255)**

CLOS, MARJORIE. Evaluation of mental health workshops in Kentucky. **Journal of education research** 59:6, February 1966. pp. 278-281.

The Minnesota Teacher Attitude Inventory was used to study the attitude changes in teachers who participated in a 3-week or 4-month workshop on mental health. The MTAI was taken on the first and last days of the workshop and nine months after the workshop. Teacher attitudes changed in a positive way, and on the average these attitudes held up over the 9-month period. The younger the teacher and the less the teacher's education, the greater the attitude change. Workshops in a 4-month period produced more attitude change than those given in a 3-week period. **(256)**

MESHKE, EDNA. **Analysis of college classroom teaching and a form for recording evidences of quality.** Minneapolis, Minn.: Burgess Publishing Company, 1959. 20 pp.

Listed under five categories of teaching activity are evaluative questions with particular reference to effective college teaching. Space is provided for the teacher's self-evaluation. The categories are: (1) written preparations for courses to be taught; (2) presentations of subject matter in the classroom and the laboratory; (3) administration of tests during the term; (4) departmental meetings; and (5) self-appraisal. From analysis and interpretation of cumulative evidences, a degree of "quality" denoting teacher effectiveness will begin to emerge. **(257)**

STRASSMAN, HARVEY D., ALEXANDER NIES and EVELYN McDONALD. An attitudinal objective: its measurement through the use of taxonomy II. **Journal of medical education** 42:3, March 1967. pp. 201-206.

As reported in the summary, "The results of this pilot study show that the student behavior as observed on a clinical clerkship can be rated on a taxonomic scale and that these ratings do reflect the attitudes of the students toward the emotions of their patients. It also demonstrates that through this instrument, students can be compared with one another during learning experiences to determine the extent of accomplishment of attitudinal objectives. Each student can be observed in similar activities to determine whether or not an attitudinal objective has been achieved." **(258)**

SWANSBURG, RUSSELL C. Pupil performance evaluation. **USAF instructors journal** 11:3, January 1965. pp. 53-56.

Criteria for evaluation instruments are discussed and the advantages of a pupil performance checklist for teaching and evaluating a skill are stressed. Suggestions are provided for developing and using such a checklist. An example is provided of a checklist designed to evaluate handwashing procedures used by medical-helper trainees. There are three references. **(259)**

WIEDEMAN, GEOFFREY D. Are student critiques worthwhile? **USAF instructors journal** 5:2, Fall 1967. pp. 51-54.

The relative worth of any critique form is dependent upon how the form is administered and how the information obtained is evaluated and utilized. Course personnel must make an effort not to influence the student in any way when he is filling out the critique. Students attending long courses should be provided the opportunity to complete a critique at the end of each block of instruction. The student critique program at the Medical Service School has resulted in numerous improvements. In addition to learning a great deal about the use and interpretation of critique information, a program which emphasizes close support and cooperation between school and squadron personnel was initiated; the importance of remedial instruction, washback, and proficiency advancement was emphasized; the amount of lecture and demonstration-performance instruction was realigned; classroom training aids requirements, school-wide, were standardized; tests that were confusing, ambiguous, or that failed to measure course objectives were reviewed and revised; and numerous improvements in the classroom environment and the outdoor field training area were initiated. **(260)**

GROUPING FOR INSTRUCTION

ANDERSON, ROBERT H. Organizing groups for instruction. IN Henry, Nelson B. (ed.). **Individualizing instruction** (The sixty-first yearbook of the National Society for the Study of Education, Part I). Chicago: The University of Chicago Press, 1962. pp. 239-265.

The historical backgrounds of grouping practices are summarized, various grouping alternatives now in general or exploratory use are considered, and their relationship to the goal of individualized instruction is examined. The subject is presented under the following headings: Historical Perspective; Dividing Pupils into Instructional Groups (Fixed or Stable Class Groups, Departmentalization, Basis for Grouping, Subgroupings); Emerging Patterns (Informal Plans of Flexible Organization, The Concept of Multi-Age Classes, Automation and Architecture); and Conclusion. **(261)**

FLEISHER, DANIEL S. Composition of small learning groups in medical education. **Journal of medical education** 42:9, September 1967. p. 882.

Recent work in small-group composition has shown that better and more efficient learning is likely to occur when maximal individual participation and support of each group member's contribution is ensured. This is done by balancing membership according to individual behavior likely to be expressed, providing task and process resources, preventing over presentation with members likely to detract from productive work, and matching individual value orientations. The study attempts to explore whether such findings are applicable in the medical school. **(262)**

HENRY, NELSON B. (ed.). **The dynamics of instructional groups; sociopsychological aspects of teaching and learning** (The fifty-ninth yearbook of the National Society for the Study of Education, Part II). Chicago: University of Chicago Press, 1960. 286 pp.

Partial contents are: role functions of the teacher in the instructional group; the classroom group as a unique social system; the sociopsychological structure of the instructional group; characteristics and functions of leadership in instructional groups; and implications of the dynamics of instructional groups. *(USCSC 3, edited)* **(263)**

HOCK, LOUISE E. What, why, and how of classroom grouping for effective learning. **Educational leadership** 18:7, April 1961. pp. 420-424.

The question of grouping in general is discussed and the reasons for its necessity and importance are pointed out. Several kinds of classroom groups—buzz groups, job groups, study-work committees—are defined and explained. Two kinds of classroom grouping are pointed out: (1) those based on commonality of interests, skills, talents, and abilities; and (2) those based on differences involving varied backgrounds, viewpoints, and personalities. The rationale for grouping is fourfold: (1) to provide for vast differences that exist among individuals; (2) to promote more effective learning; (3) to vary teaching-learning procedures; and (4) to develop individuals capable of living and working within the society of men. Practical guides for effective grouping conclude the article. **(264)**

LONGEST, J. W. Group formation for teaching. **Journal of co-operative extension** 2:3, 1964. pp. 143-151.

The use of sociometrically formed groups was experimented with in meeting the demands of an intensive farm management program in some New York counties. One such demand was for recruiting most of the eligible farm families in the township areas selected. Attendance at meetings and fulfillment of program requirements were good when the groups were well formed and administered. The success of these groups was attributed to the high cohesiveness that occurred because the groups were formed on the basis of sociometric testing. *(ASW)* **(265)**

VEATCH, JEANETTE. Grouping is the function and process of content. **Educational leadership** 18:7, April 1961. pp. 425-428.

No average measure—physical, mental, or emotional—can be justified in grouping students because no student is average in any real sense. Teachers must group, then, to teach single *particulars*, using such as bases for classroom organization. Grouping on a single particular can come only after an initial exploratory teaching act which, in mass or individually, enables the teacher to identify specific items or elements common to two or more children; these isolated particulars become the "lesson plan" for those particular children. The problem explored here is how to help teachers identify and act upon those single particulars in order to teach specific children what they need to know exactly when they need to know it. Grouping then must be a function and a process of content, curriculum, and its learning. Specific guides to this kind of grouping are offered by an analysis of grouping appropriate to two sample situations illustrated by classes in beginning reading and written language. **(266)**

WARREN, VIRGINIA B. (ed.). Grouping the adult class. IN HER **A treasury of techniques for teaching adults.** Washington, D.C.: National Association for Public School Adult Education, 1964. pp. 15-19.

Advantages of grouping, bases for grouping, and how to decide who goes in which group are briefly discussed. The necessity for forming new groups and for using large-group and individual instruction at times is noted. **(267)**

INDIVIDUALIZING INSTRUCTION

ALLEN, DWIGHT. Individualized instruction. **California Teachers Association journal** 61:4, October 1965. pp. 27, 43-44, 47-48, 50.

Achievement, not time spent in class, is proposed as the criterion for educational progress, and provision for new levels of individualization within the school program is seen as the only way educators can achieve continuous development of responsibility among their students. Individualization is defined as a type of instruction in which the student engages in activities uniquely appropriate to his learning and which promotes independence, provides opportunities for study beyond the regular curriculum, and permits maximum use of instructional resources. The ramifications of individualized instruction, problems in planning and organizing it, and suggestions for effectively instituting it are discussed. Detailed discussions of the "resources center" and the "open laboratory" concepts are included. **(268)**

CRONBACH, LEE J. How can instruction be adapted to individual differences? IN Gagné, Robert M. (ed.). **Learning and individual differences.** Columbus, Ohio: Charles E. Merrill Books, 1967. pp. 23-39.

The effects of differences in individuals in a learning situation can be reduced by schools which adopt differentiated instructional techniques. The school should be free to identify the criteria of success; it is the task of the psychologist to devise or select instructional methods that take into account differences in pupils so that the achievement of all pupils seeking a given educational goal will be significantly greater than if a single "best" method were used. Individual adaptations can be made with results from multivariate testing by a computer. In principle, unique instructional methods could be matched to the student's intellectual processes, but any modifications must be validated. **(269)**

ESBENSEN, THORWALD. **Working with individualized instruction; the Duluth experience.** Palo Alto, Calif.: Fearon Publishers, 1968. 122 pp.

"Individualized instruction does not depend for its success upon any given arrangement of persons, materials, or environmental conditions," such as independent study, team teaching, or flexible scheduling, though these may be aspects of a given program. This statement is illustrated in subsequent pages of the book which describe the development of individualized instruction programs in three public schools in Duluth, Minnesota. The importance of financial support, use of volunteer teachers (among staff), inservice training of selected teachers, and development of behavioral objectives for the program are stressed. After a foreword by Robert F. Mager and the general discussion of individualized instruction in Chapter One, the remaining three chapters describe programs in the Congdon Park Elementary School, the Franklin-Nettleton Elementary Schools, and the Chester Park Elementary School. Twenty pages of photographs illustrate the text. Fifteen selected references on instruction are included. **(270)**

GROPPER, GEORGE L. and GERARD C. KRESS. Individualizing instruction through pacing procedures. **AV communication review** 13:2, Summer 1965. pp. 165-182.

"This report summarizes the results of three studies bearing on the relationship between pacing mode and performance. The first, dealing only with self-paced instruction, discusses the determinants of a self-adopted pace and the effects of the pace adopted on performance. The second study presents results showing the effects of fixed pacing on performance and also provides evidence concerning the relative effectiveness of self-paced and fixed-paced instruction. The third study, dealing with television instruction, reports on the relative effectiveness of alternative approaches toward individualization of fixed-paced programmed instruction. Together, they provide a body of data describing failures in the individualization of instruction which can occur as a result of inappropriate paces either adopted by learner himself or selected for him by those whose task it is to instruct him. The data also affirmatively suggest some solutions to both types of pacing problems." *(ASTD)* **(271)**

HENRY, NELSON B. (ed.). **Individualizing instruction** (The sixty-first yearbook of the National Society for the Study of Education). Chicago: University of Chicago Press, 1962. 337 pp.

Certain theories dealing with individual differences and various proposals for providing for these differences in our schools are outlined in this yearbook. The writers deal with broad issues and general principles rather than with specific proposals for each subject field at each grade level. Sections and chapters are: Section I, Conditions Tending to Encourage or Suppress Individual Differences–Theoretical Issues: Biology and Individual Differences; Society and Individual Differences; The School and Individual Differences; The Curriculum and Individual Differences; The Teacher and Individual Differences; Section II, Illustration of Individual Differences–The Search for Evidence about Individual Differences; Individual Differences Among Preschool Children: Four-Year-Olds; Individual Differences in Early Adolescence; Individual Differences Among College Freshmen; Individual Variability; Section III, Current School Practices for Individualizing Instruction: Values and Limitations (Acceleration and Retardation; Individual Differences and Vertical Organization of the School; Organizing Groups for Instruction; Curricular and Instructional Provisions for Individual Differences); Section IV, Implications of Attempts to Individualize Instruction (Teacher Preparation; The Community and the Individualization of Instruction; Facts and Issues: A Concluding Statement. An index and a list of publications of the society are included. **(272)**

MILLER, GEORGE E. Continuing education for what? **Journal of medical education** 42:4, April 1967. pp. 320-326.

Argument is made that continuing medical education should mean continuing self-education, not continuing instruction. If this desirable goal is to be accomplished, there must be movement away from the content model, which is built around subjects (cardiology, biochemistry, oncology, and endocrinology) and encourages dependence on teachers, to a process model, which demands a significant measure of self-reliance–a shift away from preoccupation with courses and methods, toward an augmented concern for educational diagnosis and individualized therapy. **(273)**

MURSELL, JAMES L. The principle of individualization . . . IN HIS **Successful teaching: its psychological principles**. New York: McGraw-Hill, 1954. pp. 172-208.

Learning at its best is a coordinated, unified, meaningful enterprise, undertaken jointly by the homogeneous group, with numerous avenues for individual contributions. Meaningful learning proceeds from the individual learner's purposes, aptitudes, abilities, and experiences. Good individualization includes consideration of vertical and qualitative differences. Vertical difference refers to a single characteristic (such as intelligence) that can be measured to establish order for learners. Qualitative difference refers to varying aptitudes, interests, and methods of work. Individualization in guiding trial-and-error experiments peculiar to the learner will produce desirable results. There are six ways to use the principle of individualization: (1) uniform tasks can be performed on uniform schedule with individualization appearing in differential performance; (2) homogeneous grouping can recognize differences in level between groups and differential performance within each group; (3) a contract plan can allow the individual student to work from a printed lesson with instructions and suggestions; (4) individual instruction; (5) large units of work with suggested optional activity; and (6) individual undertakings stemming from and contributing to a joint undertaking of a group of learners. **(274)**

THELEN, HERBERT A. Some classroom quiddities for people-oriented teachers. **Journal of applied behavioral science** 1:3, July-August-September 1965. pp. 270-285.

Educational practices derived from a traditional philosophy of education, with socialization as its major objective, and from the philosophy of education whose objective is the development of a voluntary quest for meaning (author's position) are contrasted. Current socializing practices are discussed in sections entitled Engagement Without Learning, Socialization Without Education, and Sacrosanct Practices. In a section entitled The Educative Process, the need for actualizing certain natural tendencies present in all individuals is stressed: (1) involvement tendencies – speculation and closure where stimuli are too sparse, selection where stimuli are overwhelming, and rationalization or resolution of inconsistencies; (2) the tendency of involved persons to seek meaning through discussion in friendship or psyche groups; and (3) the tendency to seek closure amidst semi-conflicting and untested opinions from authorities or by moving into sociogroups (work groups or class groups). The purpose of the classroom group should be to plan and carry out activities in pursuit of shared goals. To the extent that the natural tendencies of individuals are built upon, the class could enjoy high morale, student involvement, and few disciplinary problems. Aspects of classroom teaching touched upon in connection with this viewpoint are lectures, group discussions, projects and experiments, demonstrations, field trips, films, role-playing, written materials, and laboratory training techniques. The role and functions of the teacher in student-oriented classrooms are indicated. **(275)**

CLASSROOM CLIMATE, TECHNIQUES, DEVICES

ADULT EDUCATION ASSOCIATION. **How to teach adults** (Leadership pamphlet no. 5). Chicago: Adult Education Association, 1959. 48 pp.

The aim of this pamphlet is to help teachers of adults who teach many different subjects in a variety of institutional settings. *Who Hasn't Acted This Way* pokes fun at the things teachers and students do to avoid learning in the classroom. Particular attention is given to the ways in which adult learners differ from children in *Adults as Learners. Planning for Growth* is intended to sensitize the teacher to a number of conditions (atmosphere, communication, and standards) that can make learning easier in a classroom group. *Ideas for Technical Training* suggests specifics for organizing materials and methods into new and more rewarding patterns for both students and dropouts; *When Students Drop Out* suggests a checklist for students to fill out. Other articles are: *Improving Your Teaching, What Is Learning, Using Informal Methods,* and *Adults Evaluate Themselves.* **(276)**

BULLA, LEE A. Make your lesson assignments more effective. **USAF instructors journal** 5:2, Fall 1967. pp. 55-57.

The way the lesson is assigned is effective only to the extent of what it causes the students to do. A few techniques for making the lesson assignment more effecive are: (1) the assignment must be clear and precise; (2) allow sufficient time to make the assignment; (3) discuss the assignment thoroughly; (4) be explicit about the work to be done outside of class; (5) relate the assignment to the next day's activities; (6) challenge each student to complete the assignment; and (7) pick an opportune time to make the assignment. **(277)**

CASTLE, LYNN E. Understanding the individual learner. **Supervisory management** 3:4, April 1958. pp. 8-15.

The article shows how the successful instructor will try to understand individual learners rather than sort them into stereotyped groups. It notes some hindrances to understanding people and suggests ways to study the individual so that his training will best meet his needs. *(USCSC 4, edited)* **(278)**

DOUGLAS, THOMAS W. The fear factor in training: a case history in building training morale. **Training and development journal** 20:6, June 1966. pp. 41-46.

In industrial training, tension and fear create a psychological problem of broader dimension and greater magnitude than is realized. The fear factor can be controlled in several ways: (1) the training director must be confident and at ease; (2) it is a mistake to move too quickly, especially in the first part of the program; (3) good physical arrangements such as comfortable armchairs and continuous seat rotation make the atmosphere less fatiguing; (4) a designated "sheriff" and "posse" can collect fines for assessed minor infractions of the "house rules" (such as misuse of terminology), a technique which will lighten the atmosphere; and (5) pressure can be eliminated from testing by controlled self-grading and the matched team approach. **(279)**

GOMERSALL, EARL R. and M. SCOTT MYERS. Breakthrough in on-the-job training. **Harvard business review** 44:4, July-August 1966. pp. 62-72.

A study of the relationship between organization climate and job performance disclosed that reduction of the causes of anxiety among new employees shortened training time by half, lowered training costs by two-thirds, cut absenteeism and tardiness in half, reduced waste and rejects by four-fifths, and cut costs by as much as 30 percent. A one-day program to overcome anxieties was started with a two-hour orientation. The excellent opportunity to succeed was emphasized, ignoring "hall talk" was recommended, and taking the initiative in communication was urged. Supervisors were described as persons the new employees would enjoy getting to know. Some of the new employees were then told that there would be no work the first day—they could relax, get acquainted with one another and the organization, and ask questions. The next day training proceeded as usual, and the employees were finally assigned to their tasks. The experimental group immediately showed better attitudes, learned faster, and performed better than the control group whose members had not received the special treatment described above. **(280)**

SOMMER, ROBERT. Classroom ecology. **The journal of applied behavioral science** 3:4, October-November-December 1967. pp. 489-503.

"In six equivalent discussion sections of an introductory psychology class involved in an experiment in which classrooms were switched in midsemester, classroom participation was related to seating arrangement. In the seminar-style arrangement, it was found that students directly opposite the instructor participated more than students on the sides. In classrooms with straight rows, students in front participated more than students in the rear, and students in the center of each row participated more than students at the sides. These results bear out the expressive contact hypothesis relating direct visual contact to increased interaction" (abstract at beginning of article). Illustrative diagrams and discussions are furnished. Nine references are cited. **(281)**

STATON, THOMAS F. A system for conducting instruction. IN HIS **How to instruct successfully: modern teaching methods in adult education.** New York: McGraw-Hill, 1960. pp. 157-169.

A system for conducting a period of instruction (workable for any instructional technique) that leads to most effective learning is presented. The plan provides for: preview of the period, so that trainees can know what the general plan of the lesson will be; questions to give the group specific points to watch for, helping them to stay alert; relating (or having related or demonstrated) the topic to be covered; stating or summarizing the material covered, in trainees' own words, with the mental reaction required for each of them to compose his best answer to each question; testing trainees' memory of the lesson a week ago, to provide review and refreshing of memory. **(282)**

STATON, THOMAS F. Employee counseling as a training device. IN HIS **How to instruct successfully: modern teaching methods in adult education.** New York: McGraw-Hill, 1960. pp. 237-251.

Factors that commonly affect the degree of academic success of a trainee are his general intelligence, degree of application, personal problems, and study techniques. Basic counseling techniques for determining the source of learning problems and for establishing more efficient learning habits are presented. Counseling techniques for increasing participation in group discussions are reviewed. Suggested readings are cited. **(283)**

STATON, THOMAS F. Preparing a classroom. IN HIS **How to instruct successfully: modern teaching methods in adult education.** New York: McGraw-Hill, 1960. pp. 186-192.

The conditions and equipment for best instruction in a training program are set forth. The following topics are discussed: desirable characteristics of a classroom (attractiveness, illumination, quiet, comfortable temperature); furnishings (tables and chairs, equipment for the instructor, general classroom equipment). Suggested readings are cited. **(284)**

WARREN, VIRGINIA B. (ed.). Creating a good climate for learning. IN HER **A treasury of techniques for teaching adults.** Washington, D.C.: National Association for Public School Adult Education, 1964. pp. 5-9.

A good learning climate exists where class atmosphere is warm, friendly, and free from threat; new ways of acting are encouraged; the student gradually becomes independent of the teacher's learning supports; and there is effective three-way communication among teacher, student, and other students. Skills needed by the teacher include abilities to stimulate a clear and self-evident sharing of goals, to develop clear rules of behavior for the group, and to encourage constant self-evaluation among students. Unrestricted communication and a teacher who is not too bossy are signs indicating conditions for effective learning. Suggestions for motivating students to do outside assignments, for encouraging student participation, and for determining individual differences are delineated. **(285)**

WARREN, VIRGINIA B. (ed.). How group involvement boosts learning. IN HER **A Treasury of techniques for teaching adults.** Washington, D.C.: National Association for Public School Adult Education, 1964. pp. 45-48.

Differences between the class as a collection of individuals and the class as a united group are pointed out. Specific methods for encouraging team spirit in the adult group are discussed. **(286)**

WARREN, VIRGINIA B. (ed.). How to avoid drop-outs. IN HER **A treasury of techniques for teaching adults.** Washington, D.C.: National Association for Public School Adult Education, 1964. pp. 35-39.

Motivations of adults for educational activities are discussed and suggestions are made for meeting students' needs. Signs of apathy in students are delineated, and five corrective measures are discussed: surveys, personal interviews, counseling, private tutoring, and variations in teaching design. A specific class survey form, to be answered anonymously, is presented and explained. Its use is encouraged for obtaining feedback on how well the course is meeting student needs. **(287)**

WARREN, VIRGINIA B. (ed.). How to help adults study. IN HER **A treasury of techniques for teaching adults.** Washington, D.C.: National Association for Public School Adult Education, 1964. pp. 40-44.

The prospective adult student's apprehension of courses, requiring learning how to learn all over again, is noted. The teacher can help relieve resulting anxiety by understanding feelings and offering suggestions for effective study. Specific suggestions are made for concentrating, listening, reading, tackling assignments, and training the memory. **(288)**

WARREN, VIRGINIA B. (ed.). Time savers – for teachers and students. IN HER **A treasury of techniques for teaching adults.** Washington, D. C.: National Association for Public School Adult Education, 1964. pp. 31-34.

The importance of efficient use of time by both teachers and students is emphasized. General situations and human tendencies that waste time are discussed, and suggestions are offered to help both teachers and students conserve valuable minutes. The need for taking enough time for necessary classroom activities, particularly for developing the climate for learning, is noted. **(289)**

INSTRUCTOR ROLE

AMIDON, EDMUND J. and MICHAEL GIAMMATTEO. The verbal behavior of superior teachers. **The elementary school journal** 65:5, February 1965. pp. 283-285.

Teachers were observed by a trained specialist who used the Flanders system of interaction analysis to classify classroom verbal behavior into ten categories. The categories describing teacher behavior were: acceptance of feeling; praise or encouragement; acceptance and use of student ideas; questions; lecture; direction-giving; and criticism. Two categories used to classify pupils' talk were response to the teacher and talk initiated by the pupil. An additional category was silence or confusion. Results indicate that the verbal-behavior patterns of superior teachers differ substantially from those of average teachers. The superior teachers (1) talked about 40 percent of their total class time, while the normative group talked about 52 percent; (2) were more accepting of pupil-initiated ideas, tended to encourage these ideas more, and made a greater effort to build on these ideas; (3) dominated their classrooms less, used indirect verbal behavior more, and used direction-giving and criticism less; (4) asked questions that were broader in nature, and their lectures were interrupted more by questions from the pupils; and (5) had about 12 percent more pupil participation in their classes. A large-scale study conducted by Flanders in which he related pupil achievement to teacher's patterns of verbal behavior supports these conclusions. **(290)**

AMIDON, EDMUND J. and ANITA SIMON. Teacher-pupil interaction. **Review of educational research** 35:2, April 1965. pp. 130-139.

Three systems are currently used to categorize teacher-pupil behavior directly or from taped classroom conversation: (1) cognitive system, (2) affective system, and (3) multidimensional system. A review of research related to the following areas is also presented: teaching patterns; achievement; climate, perception, and personality; and teacher education. A bibliography is included. **(291)**

ASCHNER, M. J. The language of teaching. **Teachers college record** 61:5, February 1960. pp. 242-252.

Language is both an instrument and a vehicle of teacher-student interaction. The action concept of language suggests that verbal behavior has a dimension of meaning in the act of speaking as well as in the occasion of its performance (context). A verbal act is an utterance. There are many wordless elements in verbal behavior, such as tonal stress, pitch, pauses, and voice inflection. Nonverbal behavior is unaddressed expressive behavior such as facial expressions. Skinner's theory of verbal behavior contrasts with the action concept in two ways: a standard for identifying data and describing observations should be shaped to the purposes for which the data are studied; the conceptions or assumptions built into such a standard should be recognized and acknowledged by its users. The language of teaching is the language of that responsible action which is taken to influence the behavior of those under instruction. The teacher uses language in all aspects of teaching. He should study and interpret verbal action to enable him to diagnose his teaching and adapt it to his pupils' comprehension and progress; to appraise the quality of their reasoning; and to assess their emotional reactions to a situation. The teacher's control over his dealings with language determines his success or failure at inducing learning. **(292)**

BANDLER, BERNARD. Ego-centered teaching. IN Parad, Howard J. and Roger R. Miller. **Ego-oriented casework: problems and perspectives; papers from the Smith College School for Social Work.** New York: Family Service Association of America, 1963. pp. 223-235.

Clinical insights and systematic conceptual constructs in ego psychology are discussed in terms of their implications for the field of education. The importance of "ego-syntonic" (ego-centered) teaching to the educational task is stressed. Problems of psychological resistance and maturational conflicts illustrate the importance of such teaching. Ego-syntonic resources available to the teacher include the capacity for relationship and for being an object of identification for the student. [Located too late for indexing.]

BARR, ARVIL S. and ROBERT E. JONES. The measurement and prediction of teacher efficiency. **Review of educational research** 28:3, June 1958. pp. 256-264.

Several studies have tried to measure and predict teacher efficiency. Some measured pupil growth and achievement as criteria for effectiveness, some explored other factors; the methods used have also been investigated. The relationship between personality and teacher efficiency, and perceptions and behaviors have also been studied. These studies show that: (1) teachers and teaching are parts of a complex situation that can be studied from many points of view and involve pupils, purposes, values, activities, and products; (2) most studies have dealt with surface aspects; (3) although a great deal of thought has been given to the criteria of teacher efficiency, researchers find low correlations between the most frequently used criteria; (4) a clearer distinction is needed between ability and achievement; and (5) a need for greater continuity in teacher evaluation research exists. **(293)**

BARR, ARVIL S., D. A. WORCESTER, ALAN ABELL, CLARENCE BEECHER, LELAND E. JENSEN, ARCHIE L. PERONTO, THOMAS A. RINGNESS and JOHN SCHMID, JR. **Wisconsin studies of the measurement and prediction of teacher effectiveness: a summary of investigations.** Madison, Wis.: Dembar Publications, 1961. 156 pp.

In 12 chapters by various authors, 83 unpublished doctoral dissertations and articles are summarized. The original studies all explored methods of validating an objective approach to teacher evaluation. Some of the approaches explored were: measures of pupil growth and achievement; tests of qualities thought to be associated with teacher effectiveness, and all sorts of rating scales; studies of teacher and pupil behaviors and interrelationships; and tests of basic knowledges, attitudes, and skills. The contents are: (1) Nature of the Problem, by A. S. Barr; (2) The Criterion of Teacher Effectiveness, by A. S. Barr; (3) Methodology of the Investigations Here Summarized, by A. S. Barr; (4) The Data-Gathering Devices Employed, by Clarence Beecher; (5) The Use and Abuse of Correlational and Regression Techniques in the Evaluation and Prediction of Teacher Effectiveness, by Alan Abell. (6) Factor Analysis of the Teaching Complex, by John Schmid; (7) A Non-Additive Approach to the Measure of Teacher Effectiveness, by Leland E. Jensen; (8) Patterns of Effectiveness and Ineffectiveness in Teachers, by Archie L. Peronto; (9) Personal Prerequisites to Teacher Effectiveness, by A. S. Barr; (10) Motivation a Factor in Teacher Effectiveness, by Thomas A. Ringness; (11) Some Assumptions, Explicitly and Implicitly Made, in the Investigations Here Summarized, by D. A. Worcester; and (12) Teaching Ability and Its Correlates, by A. S. Barr. A list of studies summarized is included. **(294)**

BELLACK, ARNO A. (ed.). **Theory and research in teaching.** New York: Columbia University, Teachers College Press, 1963. 122 pp.

Nine contemporary research studies emphasizing systematic observation of the classroom activities of students and teachers are presented. Attention is focused on verbal and nonverbal behavior of students and teachers in the classroom with special attention directed to the roles, functions, and activities of teachers. The paper sets forth the conceptual framework within which the studies were planned and carried out. The studies reported are: Toward a Theory of Teaching, by B. Othanel Smith; The Evaluating Operation in the Classroom, by Milton Meux; Utah Study of the Assessment of Teaching, by Marie M. Hughes; Teacher Influence in the Classroom, by Ned A. Flanders; The Analysis of Verbal Interaction in the Classroom, by Mary Aschner; The Scientific Study of Teacher Behavior, by D. M. Medley and H. E. Mitzel; Study of Children Through Observation of Classroom Behavior, by Edna Shapiro; Analysis of Two Kindergarten Settings, by Martin Kohn; Classroom Process Study, by Eleanor Leacock. A bibliography is included. **(295)**

BROADWELL, MARTIN M. **The supervisor as an instructor; a guide for classroom training.** Reading, Mass.: Addison-Wesley, 1968. 138 pp.

On the premise that not all instruction is good instruction, this book was written to: "(1) cause the instructor to develop a concern for the results of his teaching efforts; (2) provide a practical guide which will enable the instructor to develop his own teaching techniques; (3) answer the questions most often asked by the prospective, untrained instructor; (4) provide specific examples and tests by which the industrial instructor can measure his efforts; (5) create in the instructor an awareness of the problems industrial students bring to the classroom, and enable him to cope with these problems in the learning situation." Chapter titles indicate content and organization: (1) Looking at the Instructor; (2) The Teaching Process; (3) The Learning Process; (4) Looking at the Student; (5) Communication: Tool of the Trade; (6) Student Objectives; (7) Student Motivation; (8) Interesting the Student; (9) Involving the Student; (10) Visual Aids; (11) Testing; (12) Effective Speaking; (13) Classroom Techniques; (14) Learning Theory and the Instructor; (15) The Use of Programmed Instruction; (16) Advance Planning. There is a subject index. **(296)**

BROADWELL, MARTIN M. Training the trainers. **Personnel** 43:5, September-October 1966. pp. 50-55.

The article suggests methods for improving the instruction in industry, covering class schedules, types of instruction, the trainer's job and responsibilities, the trainer's attitude toward the learner, especially directed toward on-the-job problems. It concludes that there should be a constant analysis of the program's effectiveness. *(USCSC 1, edited)* **(297)**

BROWNELL, JOHN A. and TAYLOR BROWNELL. Theoretical perspectives for teaching teams. **Phi Delta Kappan** 43:3, December 1961. pp. 150-157.

The authors seek to develop a theory of team teaching that will serve as a bridge between existing and possible team models, and between data and potential data. Their discussion is ordered as follows: statement of assumptions, definition of key terms, statement of hypothetical advantages and difficulties of teams, a rationale for models, and conjecture about their operation within existing school situations. Models are schematically represented. **(298)**

DePHILLIPS, FRANK A., WILLIAM M. BERLINER and JAMES J. CRIBBIN. Requirements for instruction, some practical problems in instruction, and questions in action. IN THEIR **Management of training programs.** Homewood, Ill.: Richard D. Irwin, 1960. pp. 131-152.

Effective instruction is a function of seven factors discussed in this section: job knowledge, teaching skills, experience, acceptable trainer personality, special attitudes, communication skills, and management skills. Practical problems in instruction which are discussed are: problems of speaking (18 evaluative questions are listed) and problems of asking questions (21 uses of questions, 22 types of questions, and 23 hints on asking questions are listed). Other classroom problems briefly discussed are: restlessness, boredom, lateness, side conversation, inappropriate humor, sleep, emotional antagonism, unofficial session endings, inattention, boisterousness, coping with delicate topics, keeping the discussion moving, passivity, wide range of experience, personality problems in trainees (11 discussed), and how to disagree agreeably (9 specific suggestions are offered). **(299)**

DYER, WILLIAM G. An inventory of trainer interventions. **Human relations training news** 7:1, Spring 1963. pp. 4-5.

A human relations trainer has certain responsibilities in group discussions. There are several types of trainer interventions that can help a group: (1) content intervention is mention of an experience, research data or opinion to give legitimacy to the discussion; (2) process intervention attempts to shift focus to what is happening in the group itself; (3) asking for feelings helps individuals learn how others feel about their behavior; (4) direction giving can help a group work through an impasse; (5) direct feedback lets group members know the reactions of the trainer; (6) by cognitive orientations, the trainer provides theory or information; (7) by performing group functions, the trainer can help the group maintain itself; (8) diagnostic intervention indicates to the group what they are doing; and (9) protective intervention protects individual members from "over-exposure." By studying the nature of trainer interventions and their effects, trainers can determine what style and strategies produce maximum learning. **(300)**

FILLEY, ALAN C. and FRANKLIN C. JESSE. Training leadership style: a survey of research. **Personnel administration** 28:3, May-June 1965. pp. 14-21.

The article addresses itself to the role of leadership style in achieving training program effectiveness. The goal is to suggest the proper balance to be maintained by the trainer between the leader-centered and the group-centered training approaches. Various meaningful patterns which may be used in the selection of an optimal style for prescribed needs are suggested by this review of pertinent research. Studies reported are not biased toward any particular form of leadership. *(ASTD)* **(301)**

FLANDERS, NED A. Personal-social anxiety as a factor in experimental learning situations. **Journal of educational research** 45:2, October 1951. pp. 100-110.

The teacher's behavior to a large extent determines teacher-student interaction and, in turn, the nature of the learning. When all the data in this experiment were organized and analyzed, the following conclusions were made: (1) student behavior associated with interpersonal anxiety takes priority over behavior oriented toward the achievement problem; (2) teacher behavior characterized as directive, demanding, and deprecating by the use of private criteria and, in general, teacher supporting, elicits student behaviors of hostility toward self or the teacher, withdrawal, apathy, aggressiveness, and even emotional disintegration; (3) teacher behavior characterized as acceptant, problem-oriented, evaluative or critical by way of public criteria and, in general, student supportive, elicits student behaviors of problem orientation, decreased interpersonal anxiety, integration, and even emotional readjustment; and (4) systematic role analysis is possible by methods which allow the introduction of controlled psychological forces into a spontaneous behavior situation. **(302)**

HERBERT, EVAN. A special report on technology for education. **International science and technology**, no. 68, August 1967. pp. 28-35.

The new technology for education attempts to engineer an entire environment for the learning process. One promise of the new techniques is that teaching can be matched more effectively to individual capabilities for learning. Devices and techniques that facilitate self-instruction can turn the teacher into a manager of learning resources for each student. With programmed instruction the student is guided through materials under the control of self-testing procedures. The criterion for progress is not how much material is covered but how well it is learned. One form of programmed instruction which provides immediate feedback to both student and teacher is the EDEX response system made by Raytheon Learning Systems. There are also immediate-access information systems that bring all kinds of curriculum materials to the classroom from a central source via electronics. Oklahoma Christian College has a system of dial-access to a library-based file. Oral Roberts University has a somewhat different system of pre-recorded curriculum materials to be used as a supplementary means of instruction. These systems require the teacher to make all decisions about substantive content and to execute the sequence of presentation. Computer-aided instruction (CAI) is an almost complete surrogate for the teacher. One attempt to let the teacher shape his own computer program is PLANIT, or Programming Language for Interactive Teaching. Preparing a computer course with presently available, comparatively clumsy programming tools requires an inordinate amount of the teacher's time and is prohibitively expensive. RCA Instructional Systems offers a "package" which includes an entire computer system with prepared curriculum material. Despite the new technology, teachers are still needed to bring perception, affection, and improvisation that no machine provides. **(303)**

HIGHET, GILBERT. **The art of teaching**. New York: Alfred Knopf, 1951. 291 pp.

Teaching is here conceived of as an art as opposed to a science and is approached from that direction. Subjects of instruction are not discussed, the methods of teaching being the author's primary concern. The book is divided into five parts. The introduction outlines the plan and purpose of the book. The second part considers the character and abilities that make a good professional teacher, and an analysis and discussion of his methods are presented in the third part. An examination of the great teachers of the past is offered in Part Four, and the final part discusses teaching by nonprofessionals in everyday life. The contents are: Part I, Introduction; Part II, The Teacher–His Rewards and Difficulties; The Qualities of a Good Teacher: Knowing the Subject, Liking the Subject, Knowing the Pupils, Liking the Pupils, Knowing Other Things; The Abilities of a Good Teacher; Part III, The Teaching Methods–Preparation–Planning, Renewal of Material; Communication–The Three Methods: Lecturing, Tutoring, Recitation; Fixing the Impression; Part IV, Great Teachers and Their Pupils–The Sophists, Socrates, Plato, Aristotle, and Alexander; Good Teachers and Bad Pupils; Renaissance Teachers; The Jesuit Teachers; Teachers of the Nineteenth and Early Twentieth Centuries; Fathers of Great Men; Part V, Teaching in Everyday Life–Fathers and Mothers, Husbands and Wives; Executives; Doctors; Psychiatrists; Clergymen and Priests; Advertisers, Publicists, Propagandists; Authors and Artists; Principles of Everyday Teaching. An index is included. **(304)**

HULIT, DARL. Team teaching in industrial education, Parts I and II. **Industrial arts and vocational education** 55:5, May 1966. pp. 22-23; and 55:6, June 1966. pp. 20-22.

A treatment of team teaching, particularly as it applies to industrial education, is presented in the framework of a four-step lesson plan. The review of the plan suggests combinations of usage which will aid in achieving the goals of the planned steps. *(ASTD)* **(305)**

ISAACSON, ROBERT L., WILBERT J. McKEACHIE, JOHN E. MILHOLLAND, YI G. LIN, MARGARET HOFELLER, JAMES W. BAERWALDT and KARL L. ZINN. Dimensions of student evaluations of teaching. **Journal of educational psychology** 55:6, December 1964. pp. 344-351.

The purpose of this study was to identify dimensions of teacher behavior, a knowledge of which is important in the effective selection and training of teachers. "Two groups of students in introductory psychology (601 in the fall semester and 569 in the spring semester) rated their teachers on a 46-item questionnaire derived largely from factor analysis of 145 items that had been used in previous studies elsewhere. The results were factor analyzed separately by sex and semester, and factor similarities obtained by Kaiser's method. Six factors appeared which were consistent over the two administrations, in different semesters, with different students and teachers. They were labeled Skill, Overload. Structure, Feedback, Group Interaction, and Student-Teacher Rapport." *(ASTD)* **(306)**

KNIGHT, JAMES A. The impact of confrontation in learning. **Journal of medical education** 41:7, July 1966. pp. 670-678.

The teacher of young adults has opportunities for creative encounter by confrontation—a face-to-face struggle which shows the relatedness between persons. Student identity moves toward fulfillment when met by mature and benevolent authority. Young adults are flexible and pliable because of the complex and multiple demands stemming from their surroundings. Confrontation at crucial moments may bring about change and may help in emotional integration on a more mature level. **(307)**

LEE, CALVIN B. T. (ed.). **Improving college teaching.** Washington, D.C.: American Council on Education, 1967. 407 pp.

This collection of 49 essays by various academic authorities includes data-gathering articles, reviews of practice, critical essays, commentaries of opinion, analyses of the academic community, and probing about the present nature of the teaching profession. The essays are grouped in the following six parts: (1) The Academic Community; (2) The Academic Man; (3) College Teachers: Quantity and Quality; (4) Teaching and Learning; (5) The Evaluation of Teaching Performance; (6) Curriculum Reform and Re-Formation. **(308)**

LeFEVRE, CAROL. Teacher characteristics and careers. **Review of educational research** 37:4, October 1967. pp. 433-447.

Studies regarding teacher effectiveness are presented under the large categories of ratings, attitude toward teaching, predicting teaching success, rigidity-flexibility, and special teachers. Studies of personality characteristics of teachers include those of teacher images and motives for teaching. Further studies reported are those of beginning teachers, teacher perceptions of children, teacher employment and turnover, and administrator-teacher interaction. A bibliography is included. **(309)**

LIPPITT, GORDON L. and LESLIE E. THIS. Leaders for laboratory training: selected guidelines for group trainers utilizing the laboratory method. **Training and development journal** 21:3, March 1967. pp. 2-13.

Some of the significant roles, problems, and qualifications of an effective group trainer are suggested. Factors affecting the trainer's roles include the purposes and design of training; length of training program; group composition; practicing philosophy of the trainer; expectations of participants; expectations of the training planners; organizational or personal needs which initiated the program; influence of the trainer's peers and his profession; current state of research and experience; and needs of the trainer. The group trainer has multiple roles; he is initiator of diagnostic training concepts; diagnostic observer at appropriate time and level; innovator of learning experience; standards protector; initiator of selected group standards for learning; and a group member. Special problems and pitfalls result if: (1) the trainer becomes too directive; (2) the trainer and group become too clinical; (3) the trainer becomes too personally involved in the group; (4) the training group is used in an inappropriate way; and (5) frustration and floundering are mistaken for learning. Several guidelines to assist the trainer in making decisions about training interventions are enumerated. Qualifications of laboratory trainers are self-understanding; personal security; previous group experience; professional training; ability in verbal communication; and training skills. **(310)**

LYNTON, ROLF P. and UDAI PAREEK. Developing the group and the climate. IN THEIR **Training for development**. Homewood, Ill.: Richard D. Irwin, Inc. and The Dorsey Press, 1967. pp. 226-273.

The article discusses: (1) three aspects of the social process in group development (establishing common tasks, developing common ways or norms of attaining them, and building realistic relationships with one another); (2) indicators of group development; (3) the trainer's direct and indirect influence when the task is not clear to participants, when the task is clear and attractive, and when the task is clear but unattractive; and (4) the roots and effects of the training climate. **(311)**

LYNTON, ROLF P. and UDAI PAREEK. The trainer. IN THEIR **Training for development.** Homewood, Ill.: Richard D. Irwin, Inc. and The Dorsey Press, 1967. pp. 275-292.

The basic requirement of a trainer is thorough knowledge of the subject matter of his field. With that requirement met, his actual behavior during training can be considered. Every trainer develops a personal training style. He grows to prefer certain kinds of training events and methods and is also most effective using these. However, neither training events nor methods nor trainer's actions tell much about a trainer's effectiveness. Several studies have shown that there is a wide variety of training goals and styles through which trainers can promote learning. These studies showed that the effective trainers, whatever their style, were very flexible and were able to vary their roles and methods to suit the changing needs. The nature, quality, and effectiveness of the interaction we call training depends primarily on the feelings that the trainer communicates to the participants through his behavior. The kinds of feeling that matter for a favorable climate include an absorbing interest and feeling of excitement in his subject and his work of training; eagerness to share the task and help the participants grow into taking more responsibility for it; acceptance of the participants as people with differing needs and personalities, and responsiveness to them; and trust in himself and in others. Any basic flaws the trainer has will show under pressure when he acts spontaneously. The most common pressures are those of time and quantity of work. Three dilemmas present in most training situations create other pressures: (1) discrepancies between participants' expectancies and the trainer's intention; (2) discrepancies between needs of individuals and needs of the group; and (3) discrepancies between the trainer's need to behave flexibly in order to meet needs of individual participants and the group's need for consistent, predictable trainer behavior. A trainer knows, or can find out how to reduce the pressures arising from these dilemmas if he feels like it, if it is in his disposition. If his disposition is not in line with effective training, then he adds a fourth dilemma which really is unmanageable: discrepancies between the needs of the trainer and the needs of the participants. Pressures from this basic dilemma are at the root of much ineffective training. **(312)**

McGEHEE, WILLIAM and PAUL W. THAYER. The trainer. IN THEIR **Training in business and industry.** New York: John Wiley & Sons, 1961. pp. 225-255.

Four phases of responsibility for training are discussed: responsibility for planning, organizing, coordinating, and evaluating training; responsibility for execution of approved training plans; responsibility for teaching; and the supervisor's special role in maintaining behavior. Past studies on the functions of trainers and on what makes a good instructor are discussed, and specific duties, tasks, traits, and abilities are listed. Suggested training content for trainers of four major types is outlined: supervisors responsible for overall training but who delegate the majority of training to others; supervisors responsible for overall training and who instruct employees; employees assigned duties of on-the-job training of other employees over whom they have no line authority; and employees who instruct in more or less formal classroom situations. Suggested procedures, a detailed outline of sixteen sessions, and trainee assignments for a course for supervisors of the second type mentioned above are presented. The need for more research on instructor tasks, selection, and training is emphasized. **(313)**

McKEACHIE, W. J. The instructor. IN Finch, Glen (ed.). **Educational and training media: a symposium** (Publ. no. 789). Washington, D.C.: National Research Council, 1960. pp. 22-33.

With the advent of television, teaching machines, simulators, and other teaching media, the role of the instructor must be examined. It seems that instructors should be concerned not only with trainee's knowledge and skills, but also with his motivation to learn more after his formal education, his feelings about the groups with whom he works, and his commitment to his goals. Assessment of the instructor will become clearer if we consider some of his usual roles and compare his effectiveness with that of other teaching instruments in relation to these objectives. Teachers probably spend more time lecturing than in any other role. Summing up the liabilities of the lecture method, we can conclude that it is a slower method of presenting information than reading or television, that the student in a lecture usually plays a passive role, and when the desired learning involves perceptual-motor responses, we would expect verbal descriptions to be less effective than visual or real experiences. On the positive side, however, a live instructor can respond to students and the lecturer may have some motivational value beyond that of other techniques of instruction. A second common role of the classroom instructor is the discussion leader, most of whom admit that they cover less ground than lecturers. Though the evidence is scanty, it seems that discussions can be effective in enabling the students to better apply the material if they have discussed it. Analysis of the role of the instructor is further complicated by the fact that some students do well with one type of test, while others do well with others. Further complications are undoubtedly introduced by the probability that the best method of instruction may depend on the instructor, or on the content or goals of instruction. References are included. **(314)**

MILLER, GEORGE E. (ed.), HAROLD P. GRASER, STEPHEN ABRAHAMSON, ROBERT S. HARNACK, IRA S. COHEN and ADELLE LAND. Student-teacher planning. IN THEIR **Teaching and learning in medical school.** Cambridge, Mass.: Harvard University Press, 1962. pp. 145-151.

Student-teacher planning, a cooperative effort to define an area of work and the means by which it can be accomplished, leads to mutual decisions and joint choices. The student's motivation to learn is used to stimulate his interest. Objectives are to design programs that can accommodate to individual differences and to create an atmosphere of learning instead of teaching. Because students often expect direction, initiative may need prodding; queries about the problem usually suffice. Suggestions should be appraised from the standpoints of goals. Pitfalls of this approach are that subject-oriented faculty may regard it as pointless or that some instructors may hesitate to disagree with student plans even though they are not productive. **(315)**

REISEL, JEROME. Observations on the trainer role: a case study. IN Tannenbaum, Robert, Irving R. Wechsler and Fred Massanik. **Leadership and organization: a behavioral science approach.** New York: McGraw-Hill, 1961. pp. 188-205.

This study presents a way of looking at the trainer role to identify and describe problems which are most likely to be encountered, particularly by those who undertake a sensitivity training assignment, and to demonstrate the basic premise that the trainer is a potent factor in the total interaction of his group. In observing two trainers, five major problems were uncovered, each a potential source (or consequence) of trainer anxiety and difficulties: (1) time limitation; (2) group composition; (3) exposure and vulnerability; (4) reconciling behavior and theory about group functions; and (5) content vs. process orientation. Persons who serve as sensitivity trainers have a vital interest in developing and utilizing their ability to exercise influence (leadership) in order to help people be more sensitive and skillful in the handling of interpersonal relations. These are not the ordinary goals of leadership activity. There are strong overtones of social responsibility in this kind of teaching-leadership function. **(316)**

ROSE, HOMER C. The instructor and his job. IN HIS **The instructor and his job.** Chicago: American Technical Society, 1961. pp. 1-14.

"The competent instructor in the classroom and on the job is the builder of bridges between expanding and changing subject matter on one side and a wide range of personalities on the other, personalities of people who must learn new theories, new attitudes, and new skills." Six essential broad qualities for a person who wants to become an instructor are discussed: (1) competence in the subject being taught; (2) mastery of the techniques of instruction; (3) resourcefulness and creativeness; (4) the habit of evaluation; (5) the desire to teach; (6) ability to develop good personal relationships. Seventeen questions and suggested assignments conclude the chapter. **(317)**

SKINNER, B. F. Why teachers fail. **Saturday review** 48:42, October 16, 1965. pp. 80-81, 98-102.

Corporal punishment, ridicule, and other forms of aversive control cause students to escape, counterattack, or withdraw; any of these reactions hinder learning. If the student is to learn efficiently, the teacher must not be a threat. Providing an opportunity to learn in a natural way is one way to teach, but simply showing or telling will not alone induce learning; there must also be positive reinforcement. The proper arrangement of reinforcement contingencies under which behavior will change is necessary to successful teaching. The failure of showing and telling is attributed to lack of attention, which teachers try to combat by eliminating distractions or by making materials more attractive and attention-compelling. Audiovisual aids are often misused in this way. In the discovery method, the teacher arranges the environment in which discovery is to take place, suggests lines of inquiry, and keeps the student within bounds, but tells him nothing. The student then learns from the world of things. But "discovery" is not the solution to the problems of education—the accumulated knowledge and wisdom of a culture must be transmitted. Research in behavioral science is contributing to a technology of teaching which will offer effective alternatives to current practices. **(318)**

SMITH, B. OTHANEL. A concept of teaching. **Teachers college record** 61:5, February 1960. pp. 229-241.

Teaching is activity intended to induce learning. Teaching and learning are different processes. Teaching does not necessarily induce learning, but learning may result from teaching activity and interactions of teacher and pupil. Learning, being an acquired disposition to behave in particular ways in particular circumstances, is neither activity nor behavior, though it is manifested by activity. All the variables of teaching activity are of three categories: independent variables (teachers), intervening variables (pupils), and dependent variables (pupils). The independent variables consist of linguistic, performative, and expressive behaviors. The intervening variables consist of constructs or postulated entities and processes which stand between the independent and dependent variables, and are functionally related to them. The dependent variables are behaviors identified with the acts of receiving instruction and are functionally associated with learning. Certain groups of teaching actions are performed with language. Didactic verbal behavior includes: defining, classifying, explaining, conditional inferring, comparing and contrasting, evaluating, and designating. A second group that instructs the pupil includes didactic actions. Finally, the teacher performs admonitory acts. Nonverbal actions include: performative actions and expressive behavior. A parallel between these teaching actions and the pupil actions (dependent variables) constitutes the instruction-taking part of the teaching cycle. **(319)**

SOAR, ROBERT S. **An integrative approach to classroom learning.** Philadelphia: Temple University, 1966. 325 pp.

Past research (reviewed in Chapter Two) on the identification of effective teaching in relationship to different sets of educational goals (subject-matter achievement and intellectual, emotional, and social growth) has had difficulty in measuring complex processes and interrelationships. This study attempted to overcome these difficulties by using some new tools: new systems for observing teacher-pupil interaction, a variety of measures of pupil characteristics, and computers for complex data analysis. The broad purpose of the study was to identify a common core of teacher skills associated with different aspects of pupil growth. It was hypothesized that teacher-pupil sharing of planning, directing, and control, and effective group interaction were parts of this core pattern. It was further hypothesized that these skills could be taught. Subjects were teachers and pupils in 57 classrooms, grades 3 through 6, in 4 elementary schools from 2 metropolitan systems in South Carolina. Several aspects of pupil growth were measured; teacher-pupil classroom behavior was observed using Flanders Interaction Analysis and the South Carolina Observation Record; sensitivity training for a subgroup of the teachers was provided the summer between the two project years; and a number of teacher characteristics, including personality, were measured and related to composites of teacher-pupil behavior and pupil change. The findings suggested that emotional climate of the classroom is an important factor in pupil growth, with the expression of hostility having deleterious effects even in a generally supportive atmosphere, and that the processes which facilitate pupil change are compatible; however, one level of teacher control is needed for optimal pupil growth in vocabulary and arithmetic concepts, a second level is needed in reading and arithmetic problem-solving, while a third level is required for optimal growth in creativity. It was concluded that teaching is so complex that no single aspect best supports the achievement of every educational goal. A nine and one-half page bibliography is included. **(320)**

TABA, HILDA and FREEMAN F. ELZEY. Teaching strategies and thought processes. **Teachers college record** 65:6, March 1964. pp. 524-534.

The study of thinking in elementary school children, of which this paper is a report, set out to examine the processes of thought in the classroom in terms capable of pointing out the significance of the learning and teaching of certain cognitive skills in the school setting. The fundamental assumption was that thought consists of specific, describable processes that are subject to training, not of some category of powers that are inherent in the individual. Therefore the study sought to create categories for analyzing thought that described learnable, and therefore teachable, processes. Specific processes in three cognitive tasks were identified: (1) concept formation; (2) the making of inferences and the induction of generalizations from interpretation of specific data; and (3) the application of generalizations to explain new phenomena and to predict the consequences of certain events and conditions. Twenty elementary classrooms involved in the study followed a social studies curriculum centered on a series of basic ideas and organized for an inductive discovery and development of these ideas. In addition, the curriculum outline included a planned sequence of learning experiences designed to enhance the development of generalizations and their application to solving problems. The study also provided for special training of the teachers in the analysis of thought processes and in devising effective teaching strategies for their development. Analysis of the results of the study indicate that teacher behavior greatly influences student thinking and that the level of thought attained by students seems to be determined by the whole pattern of teaching strategies. The findings so far suggest that if the acquisition of skills in autonomous thinking is to be a realistic objective, a much more thorough study of and experimentation with the appropriate teaching strategies for the development of thinking is called for. **(321)**

THELEN, HERBERT A. **Classroom grouping for teachability**. New York: John Wiley & Sons, 1967. 274 pp.

The research investigation of which this book is the account sought to answer the following question: How can the "resources" of teachers and students be utilized more effectively for educational purposes in the classroom? Chapter titles describe the contents: (1) Context: Social Issues and Educational Alternatives; (2) Knowledge: Scientific Research and Educational Practice; (3) Objectives: From Student Types to Teachable Classes; (4) Outcomes: Educational Achievement and Personal Satisfactions; (5) Teachability: The General Factor and Its Variability Among Teachers; (6) Facilitation: The General Tendencies and Their Variability; (7) Congruence: The Fit Between One Teacher's Style and His Teachable Students; (8) Patterns: Four Additional Styles and Compatibilities; (9) Change: One Classroom's Dynamics of Mutual Accommodation; (10) Reflections: Conclusions and Strategies. Thirteen appendices on methods, techniques, and various data of the study are included, along with an index. **(322)**

WIDGERSON, HARRY I. (ed.). Team teaching. **Education** 85:6, February 1965. pp. 323-353.

The feature section of this issue of *Education* contains six articles on team teaching. The articles include: (1) Team Teaching in American Education; (2) What Is Team Teaching?; (3) Planning for Team Teaching; (4) Team Teaching in the Elementary School; (5) Team Teaching in the High School; and (6) A Current Appraisal of Team Teaching. **(323)**

TRAINING PROGRAM–FUNCTIONS, ORGANIZATION, ADMINISTRATION

ARZIGIAN, SIMON. **On-the-job training costs: an analysis.** Washington, D.C.: Naval Personnel Support Activity, Personnel Research Laboratory, June 1967. 36 pp.

The purpose of the study is to determine the feasibility of computing the cost of on-the-job training which an enlisted man, in a given rating, receives to bring him up to the journeyman level, a point in his development when he is able to perform his duties with a minimum of supervision. Four basic questions were found to be central in arriving at an estimate of on-the-job training costs: (1) what is the journeyman level?; (2) what is the rate of learning?; (3) how much time is spent by the supervisor?; and (4) what are the cost elements involved? Section headings indicate contents: Summary and Conclusions; Introduction; Purpose; Scope of Study; On-the-Job Training Objectives; Prior Studies; Discussion: Journeyman Level, Rate of Learning, Supervision Time, Cost Elements; System Development; Conclusions and Recommendations; Appendix A, Relative Effectiveness; Appendix B, Concepts of Pay Grade Assignments; Appendix C, Definitions of Man-Machine Trade-Off Functional (Occupational) Categories and Distributions of Navy Sea-Going and Aviation Ratings by Such Categories. **(324)**

BELBIN, R. M. Training older workers. **Training in business and industry** 3:6, June 1966. pp. 29-33.

Several experiments in training older workers are reviewed and analyzed in an effort to illustrate the value of adapting the method of teaching an industrial skill to the age of the trainees concerned. Three stages of learning in adult training are discussed: (1) discovering–the adult trainee is induced to range over the parameters of the situation, discovering the facts for himself by active participation; (2) understanding–the trainee endeavors to give expression to the understanding created by his own activities; and (3) consideration–the trainee engages in practice and rehearsal in learning sessions sufficiently long to allow for ample consolidation of skills and competencies. Argument is made that when training methods are adjusted to the requirements of older workers, traditional barriers in recruitment of older personnel are invalid. The article concludes with a discussion of the cost differential of training younger and older workers, and it is maintained that the difference may be a good deal smaller than is normally supposed. **(325)**

BELMAN, HARRY S. and JOHN E. BLIEK. The internal organization of the training function. **Journal of the American Society of Training Directors** 13:9, September 1959. pp. 26-30.

The article covers how a training unit is staffed, what subdivisions are currently found in such units or departments, what they are called, what purposes they serve, and how many are employed. *(ASTD)* **(326)**

BELMAN, HARRY S. and JOHN E. BLIEK. The nature of current training function activities. **Journal of the American Society of Training Directors** 5:2, February 1961. pp. 31-46.

This is the final report of the series "A Survey of the Status and Functions of Training Departments in Business, Industry, and Government." Data are reported numerically and with interpretations. They cover persons responsible for determining training needs, objectives of training functions, training function and management development, types of training, and maintaining activities. Evidence points up the fact that there is greater need for the study of training function activities, personnel, and relationships. *(USCSC 4, edited)* **(327)**

BIENVENU, BERNARD J. What kind of training for tomorrow? **Personnel** 8:6, November-December 1961. pp. 8-17.

In view of recent and rapid changes in industrial processes, a critical re-examination of the training function is in order. Alterations in skill requirements, making the physical realm subordinate to the intellectual, have outdated some former assumptions. Training will not cure all ills; orientation should not be confused with development of executives; human relations training may be definitely hazardous. The author urges training concerned with flexibility and adaptability and with the development of conceptual skill, imagination, and judgment, and makes recommendations on how the new training might be developed. *(USCSC 4, edited)* **(328)**

BOYNTON, RALPH E. Budgeting and controlling training costs. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook**. New York: McGraw-Hill, 1967. pp. 593-604.

The training director must accept responsibility for the financial administration of his position. Aspects of budgeting discussed include a general discussion, types of budgets, budget preparation, and indirect expenses. Cost control aspects treated include special expenses, plan of operation, and the importance of the budget to the training director and his program. The chapter concludes with a brief discussion of the economics of training. Sample budget and cost control forms are included. **(329)**

BUCHANAN, PAUL C. The function of training in an organization; using a model or conceptual framework approach to personnel development. **Journal of the American Society of Training Directors** 14:4, April 1960. pp. 53-63.

A conceptual framework for planned social change is presented with training viewed as one aspect of this change. Answers to questions regarding the function of training, goals the program should have, and the methods that should be used are discussed. *(USCSC 4, edited)* **(330)**

BUTTON, WILLIAM H. **Employee training in small business organizations** (Bulletin 42). Ithaca, N.Y.: Cornell University, State School of Industrial and Labor Relations, 1964. 43 pp.

This is a guide to establishing training activities. It discusses objectives, policy, and needs; supervisor and training; principles of learning and steps of job instruction; and evaluation. *(USCSC 4, edited)* **(331)**

CALDWELL, LYNTON K. **Improving the public service through training**. Washington, D.C.: U.S. Agency for International Development, Public Administration Division, 1962. 129 pp.

The function of training in present-day government is explained and principles and concepts fundamental to extension of human resources necessary for national development are offered. The emphasis is on training in its broad sense, which includes learning and education, rather than on techniques. Contents: Training—Key to National Development; The Training Element in Administration; Determining Training Needs; Organizing Training Facilities; Utilizing Training Methods and Materials; Building Support for Training; Measuring and Evaluating Training Effectiveness; Educational Resources for Public Service Training; Technical Assistance in Public Service Training; Selective Guide to Information on Training. *(USCSC 4, edited)* **(332)**

DeCARLO, CHARLES R. and ORMSBEE W. ROBINSON. **Education in business and industry**. New York: Center for Applied Research in Education, 1966. 118 pp.

The book deals with the responsibility of business and industry in educating and training the labor force, and with the measures adopted and planned for meeting this responsibility. The history of education in business is traced from the apprenticeship of the Middle Ages to the large-scale and complex corporate training programs of the present. The educational philosophy and practices in business and industry are compared with those of schools and universities. The business environment within which these programs are pursued is described. Not only the general educational endeavor in business, but also the problems and objectives which accompany a particular type of program, are examined. The current issues in education in business and industry and the patterns of possible future trends are analyzed. Chapters include: (1) A Perspective; (2) Education in Business and in School: A Comparison; (3) The Nature of Modern Business: Problems and Goals; (4) Educational and Training Programs for the Individual; (5) Educational Programs for Managers; (6) Evaluations and Projections. A bibliography and index are appended. **(333)**

DePHILLIPS, FRANK A., WILLIAM M. BERLINER and JAMES J. CRIBBIN. The organization and administration of training programs. IN THEIR **Management of training programs**. Homewood, Ill.: Richard D. Irwin, 1960. pp. 229-359.

This is the third unit of four in the book and contains chapters and sections entitled: The Organizational Structure—Help or Hindrance to Training (Responsibility for Training, Line-Staff Relationships, Training and the Size of the Company, The Training Division, Training Organization Relative to Type of Training); Establishing Training Programs—Getting the Most for Your Money (Why Have a Program for Training?, Determining the Need for Formal Training Programs, The Role of the Training Division); Job, Skill, and Special Training Programs—Getting Off on the Right Foot; Supervisory and Management Development Programs—Capitalizing on Leadership Abilities (Leadership and Business Survival, The Nature of Supervisory and Management Positions, Supervisory Training Programs). **(334)**

DOYLE, ROBERT J. A recommendation for a corporate training and development policy. **Management of personnel quarterly** 6:3, Fall 1967. pp. 7-11.

A training and development policy is a guide prepared by responsible company officials to be used by line and staff managers and specialists. The first element of the policy should be a statement of purpose, an overall declaration of the need for training and the organization's commitment to it. The second element is the major objectives for the training and development effort. The policy requires the coordinated efforts of many line and staff executives, managers, supervisors, and specialists; it should provide guidelines for everyone who shares responsibility for implementation. The personnel and groups who need specific training should be identified in the policy. Basic administrative situations can be handled expeditiously by having major guidelines for employees and management. It is not essential to list specific programs in detail, but where a program is universal and permanent, it should be included in the policy. **(335)**

ENGSTROM, ELMER W. What top management expects of the training function. **Training and development journal** 21:9, September 1967. pp. 48-50, 52-54.

The author comments on the new technologies which require new skills. He speaks of the total cost of training for industry and of its upward spiral, of advances in communication, of the needs of trainers, and of the desirability of sharing knowledge with counterparts abroad as the growth of enterprises becomes multi-national. *(USCSC 1, edited)* **(336)**

HIGGINSON, MARGARET V. **Management policies II; sourcebook of statements** (AMA research study 78). New York: American Management Association, 1966. 110 pp.

Included are policy statements on such subjects as: Conflict of Interests; Consultants and Outside Services; Equality of Opportunity; Information, Release . . .; Management Development; Performance Appraisals and Salary Adjustments; Personnel Relations; Selection and Placement of Management Personnel; Suggestions, Employee. *(USCSC 1, edited)* **(337)**

KING, DAVID. The integration of training, organization, and policy. IN Heller, Frank A. **New developments in training; five studies in the efficient communication of skills.** London: Polytechnic Management Association, January 1959. pp. 65-80.

Training is an integral component of the life process of a firm; to be successful, it must relate continuously to policy and organization. When viewed in this light, the introduction of training schools, at whatever level, can and should lead to a continuing clarification of the firm's policy, and this to a steady improvement in its adaptation to its environment. In practice, this can be achieved by designing training procedures which act as built-in self-regulating mechanisms. **(338)**

KING, DAVID. **Training within the organization: a study of company policy and procedures for the systematic training of operators and supervisors.** Chicago: Educational Methods, 1965. 274 pp.

The book is designed as a guide for practicing management—the director, the manager, and the training staff—who are all concerned in their different roles with the long- and short-term problems of training. Much of the material is drawn from the author's experience as a consultant and research worker attempting to bridge the industrial and academic worlds. The aim is to convey the results of that experience to those who are concerned with training within an organization. Instructional techniques and also the process by which a person adapts to his role in a company organization are covered. Part I, Case Studies and Commentaries, consists of case descriptions of establishing systematic training schemes for operators and supervisors, together with commentary and background material. Included in this part are chapters entitled: Systematic Training for Operators—A Case Study; Systematic Training in Perspective; Systematic Training for Supervisors—A Case; Some Comments on Supervisor Training. Part II, Some Basic Questions in Training, raises fundamental issues in establishing training within a company, concerning the nature of training and its relationship to company organization and policy. The chapters are: What Is Learning?; How Can Learning Be Assisted?; Optimum Conditions for Learning; What Is Training?; Delegation of Training; Is a Training Policy Necessary? Part III, Designing a Company Policy for Operator Training, presents a guide to the formation of a company policy on training. The chapters are: What Is Needed for Training?; What Are the Company's Training Aims and Principles?; What Organization and Procedures Does Training Require?; Selection and Training of Instruction Staff; How Effective Is Training? Part IV, Designing

Procedures for Operator Training, describes a set of procedures for establishing systematic training for operators. Partial details are given on how to design training aids, how to analyze a job, how to produce a training program and handbook, and how to train instructors. Chapters are: Outline of Procedures; How to Study the Job; How to Prepare Selection Procedures; Devising Training Methods; Designing a Training Handbook; Administering Training, Reviewing the Effectiveness of Training. References, recommended reading, and an index are included. **(339)**

KIRKPATRICK, DONALD L. The most neglected responsibilities of the training department. **Journal of the American Society of Training Directors** 13:4, April 1959. pp. 32-35.

The author lists and discusses three duties of the training department which are usually neglected: (1) informing managers of available training opportunities and encouraging participation; (2) stimulating on-the-job use of information and techniques learned in training programs; (3) evaluating training programs and making use of findings. *(USCSC 3, edited)* **(340)**

LOTT, O. C. Evaluating to reduce training costs. **Training and development journal** 21:1, January 1967. pp. 38-41.

Many training courses could be taught as well or better in a shorter time if properly evaluated and restructured. Though evaluation is expensive, it can pay its way by cutting training costs. *(USCSC 1, edited)* **(341)**

LOVELAND, EDWARD H. Some questions useful to a training man's conscience. **Journal of the American Society of Training Directors** 11:2, March-April 1957. pp. 11-16.

The author discusses certain questions that are essential to an efficient training program: Is training the solution to your problem?; What are the objectives of the program?; What is the content and how will it be presented?; How are the trainees and the instructor selected?; and How effective is the training program? *(USCSC 3, edited)* **(342)**

LYNTON, ROLF P. and UDAI PAREEK. The training institution and the future. IN THEIR **Training for development.** Homewood, Ill.: Richard D. Irwin, Inc. and The Dorsey Press, 1967. pp. 324-381.

The necessity for applying learning principles to the training institution (the place and program offering training) as well as recommending them to participants and their organizations is illustrated and discussed. Differences between current reality and the ideal training institution are noted. The ideal would contribute to participants by being staffed by competent, flexible trainers and administrators; by providing them with a program and an environment to consistently promote learning relevant to more effective behavior at work; and by being a live model of organizational standards such as participants hope will shape their work at home. For the trainers, the institution would provide collaboration of colleagues; supporting services, easy of access; and a stimulating, satisfying climate. For the society in which it works, the institution would be an agent for development, permeating the social fabric with qualities of inquiry, active response, evaluation of effectiveness, and enthusiastic and skillful engagement in society and its tasks. This theory provides a framework within which the main dilemmas encountered in practice, and estimates of the main directions, the minimum support, and the working methods which would help develop such training institutions are discussed in subsequent sections of the chapter, which are entitled: A Consistent Training Environment for Participants–(1) Between a Trainer's Statements and His Behavior; (2) Between Different Trainers in the Same Program; (3) Between Training Objectives and the Physical Environment; (4) Between Training Objectives and Institutional Administration: The Institutional "Climate" for the Trainers–(1) An Unfavorable Climate; (2) A Tolerant Climate; (3) A Favorable Climate (sharing routine responsibilities including discipline; gearing the internal organization to function; diversifying the trainer's functions; improving the professional competence of trainers; developing institution-wide responsibility for plans and programs); The Languages of Resistance; Crises, Dilemmas, and Resolutions in Institutional Development; The Institution as an Agent for General Development. Two readings are reprinted: Building Trainers into a Team, by R. P. Lynton; and Organizational Health of a Training Institution, by Matthew B. Miles. Various special exhibits consisting of excerpts from other publications support the text. **(343)**

LYNTON, ROLF P. and UDAI PAREEK. What is training? IN THEIR **Training for development.** Homewood, Ill.: Richard D. Irwin, Inc. and The Dorsey Press, 1967. pp. 3-13.

The importance of improving training (education of people-on-jobs-in-organizations) is discussed in terms of national expenditures for it, the disillusionment of many individuals with it, the relation of impatience and lack of skill to this disillusionment, and the reality of limited resources in rapidly developing countries. Comparisons between prevailing assumptions on which training is based and new concepts of training are made for relationships among the following factors: (1) knowledge, motivation, skill, practice, and action; (2) learning and training; (3) learning and action: the participant and his organization; (4) responsibility for training (the training institution and the organization as a whole). The contrasting behaviors and underlying philosophies of individuals who subscribe to action through training or action through force (both historically and currently) are discussed in the final section. **(344)**

MALI, PAUL. The training confidence index: a new approach to industrial training. **Training directors journal** 17:11, November 1963. pp. 19-25.

The "Training Confidence Index" (TCI) is expressed as the ratio of the ability of a worker (which is a function of his training) to the ability required to perform a particular task. It is asserted that the TCI can indicate whether or not current training needs are being satisfied, can reveal the degree of need for upgrading and updating existing programs, can point up where overtraining exists and where curtailing an existing program would produce undesirable results, and can form a matrix out of which well-planned training programs may evolve to meet the shifting skill requirements within a company. The assumptions that must be made in order to use the TCI are presented as well as a step-by-step explanation of the index itself. A bibliography is included. **(345)**

McGEHEE, WILLIAM. Cutting training waste. **Personnel psychology**, vol. 1, Autumn 1948. pp. 331-340.

Employee progress records based on worker productivity, if properly analyzed, can be of definite assistance in training industrial workers. When the relationship of early performance on a job at some ultimate level of achievement can be established, the curves are of definite assistance to the supervisor in considering whether or not to retain an employee in training. A method of determining the relationship between early performance and the time required to reach a standard of acceptable job performance is presented. **(346)**

McKEON, JESSE C. Training records and information systems. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook**. New York: McGraw-Hill, 1967. pp. 605-625.

The aim of this chapter is to develop a systematic approach to the function of providing essential information for managing the training activity. Aspects discussed are: the purpose of records, the information lag, central permanent records (personnel information), and a systems view of the training function (the phases and pertinent records of a training management cycle involving planning, organizing, implementing, reviewing, and feedback are discussed, and sample record forms are included). There is a need for better use of available information, better information, and better systems of providing access to essential information in developing and managing people. "The quality of the personnel information systems and the level of the skills of professional management are closely related in an organization." **(347)**

MINCER, JACOB. On-the-job training: costs, returns and some implications. **Journal of political economy**, supplement 5, part 2, October 1962. pp. 50-74.

The cost of investing in training is considered, comparing on-the-job training with the formal educational system. An equation for computing rate of return is provided, and on-the-job training is considered as an element in income and employment behavior in population subgroups. *(USCSC 4, edited)* **(348)**

MOORE, WILLIAM R. Training evaluation—it used to be so simple. **Training directors journal** 18:4, April 1964. pp. 45-50.

A two-pronged approach to improving training evaluation is recommended: continued refinement and more thorough application of the research and measurement approach, and a greater effort to make evaluation a part of the management system carried out by line managers and program staff. In implementing the second aspect, three elements are suggested: (1) effective and continuing supervisor-employee relationship; (2) periodical employee development interviews; and (3) program inspection. The role of the supervisor in determining training needs, establishing a climate for the application of training, and determining the effectiveness of the training is stressed. **(349)**

MORRISON, JAMES M. Planning and scheduling. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook**. New York: McGraw-Hill, 1967. pp. 593-604.

Aspects of selecting and organizing the personnel, tools, and techniques of training into a program are discussed. Specifically covered are individual personal factors in the training director which affect program decisions; the establishment of program objectives; determination of basic training approaches; securing management approval; preparing the program; trying out the program; setting detailed schedules and communicating to those affected; administering the program; special problems in planning and scheduling (pre- and posttraining activities, refresher and/or advanced training, self-development opportunities). References are included. **(350)**

MULLIGAN, J. KENNETH. Federal training moves ahead. **Civil service journal** 7:4, April-June 1967. pp. 9-13.

The 1966 Presidential Task Force on Career Advancement analyzed federal employee training and recommended changes. It was found that progress has been made since the 1958 Government Employees Training Act, but that improvement is still needed, especially in smaller agencies at the local level and in the field. Training demands will be increased by new programs, shifting occupational requirements, advances in technology, and the 90,000 new employees hired each year. The need for training before assignment to leadership responsibilities is emphasized. Executive Order 11315 (1966) created the Executive Assignment System. The President directed the Civil Service Commission to recommend to him a training program for career executives, including special training facilities. The Commission proposed establishment of full-time residential training for career executives. The Task Force concurred with this plan and recommended that agency heads designate a high-ranking official to activate an executive development program and provide resources to implement it. Executives, when trained, are to train managers who will in turn provide more on-the-job training and guidance for supervisors. Agencies are also to set up systems to review the needs of specialists, arrange for job rotation and inservice courses to meet such needs, and give the best experienced professionals full-time and residential training. Executive Order 11348 (1967) sets government training policy and calls for leadership and guidance from the Civil Service Commission. The Commission has established the Bureau of Training to plan and promote the development, improvement, and evaluation of training, and to provide consultation, assistance, and an information system on nationwide federal training needs. Cooperation among agencies and between agencies and the Commission will permit interagency training efforts, thus lowering costs, improving quality, and reducing duplication. The Task Force recommended that the agencies be required to provide interagency training whenever it will save money or produce better service. The Task Force also recommended that agency heads clarify their policies to distinguish between education and training which should be government conducted and that which should be provided in universities at government expense. **(351)**

MURDICK, ROBERT G. Measuring the profit in industry training programs; here are methods and examples for calculating training profits. **Journal of the American Society of Training Directors** 14:4, April 1960. pp. 23-29.

The article presents methods for calculating the dollar value of training, examines types of programs and their costs, and explains breakeven analysis. *(USCSC 4, edited)* **(352)**

ODIORNE, GEORGE S. Are training costs justified? **Journal of the American Society of Training Directors** 8:4, July-August 1954. pp. 9-11, 36-37.

Techniques for selling training programs on the basis of cost are discussed. The author suggests finding genuine training needs and situations where training will solve production headaches and lower costs. *(USCSC 4, edited)* **(353)**

ODIORNE, GEORGE S. The need for an economic approach to training. **Training directors journal** 18:3, March 1964. pp. 3-12.

"A case for capital budgeting for investment in human capital" is presented, including a work sheet for economic classification of training programs and a diagram of economic measures of organization performance. Among the author's conclusions are warnings against tampering with managers' personalities and about application of behavioral science research in changing management behavior. *(USCSC 4, edited)* **(354)**

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT. **The employment of older workers** (International seminars 1965-4; regional seminar, Heidelberg, 7th-9th December, 1965; final report). Paris, 1966. 54 pp.

Practices in Germany, Austria, the Netherlands, Luxembourg and Switzerland are summarized, followed by discussions on adapting jobs to older workers and then training them. *(USCSC 4, edited)* **(355)**

PRESIDENTIAL TASK FORCE ON CAREER ADVANCEMENT. **Investment for tomorrow.** Washington, D.C.: U.S. Civil Service Commission, 1967. 69 pp.

The President appointed a task force to review critically the post-entry training and educational programs for federal employees in professional, administrative, and technical occupations. He charged the members with responsibility for recommending action that would exploit to the maximum the best methods for learning and for renewal in a time of changing technology. In a summary chapter, key recommendations and findings in certain areas are presented: government-wide policy; programs for managers; programs for specialists; interagency training; education; the Civil Service Commission; and agency operations. Other chapters are entitled: Sharing an Investment; The Individual and the Organization; A Forecast; Development for Administration; Development for Specialization; Interagency Training; Education; Planning, Programming and Operating; Authority and Responsibility (including an appendix indicating the pattern of responsibilities); and Next Steps. **(356)**

PRESIDENTIAL TASK FORCE ON CAREER ADVANCEMENT. **Self and service enrichment through federal training: selections from studies, reports, and papers submitted to the Presidential Task Force on Career Advancement** (Annex to the report of the Presidential Task Force on Career Advancement). Washington, D.C.: U.S. Civil Service Commission, 1967. 577 pp.

The Presidential Task Force on Career Advancement attempted to make its study of the best education and training practices in industry, in the universities, and in other governments truly searching and constructive. Consultations, interviews, and correspondence provided broad base information. Specific projects were set up. The Task Force also invited papers from outside the government. The accumulated materials represent an invaluable collection useful to people concerned with professional, administrative, and technical education and training. Significant selections are assembled in this annex. Topics included are: (1) Change and Its Influence on Training Needs; (2) A Philosophy for Training; (3) Training for Administration and Management; (4) Training for Specialization; (5) University Training and Education; (6) Interagency Training; (7) Government In-Service Training Centers; (8) The Problem of Evaluation; (9) Experimentation and Innovation; (10) The Employee Development Officer; (11) The Military and Foreign Countries; and (12) An Overview of Federal Training and Education. An appendix includes copies of the Government Employees Training Act of 1958 (which provides the means for keeping key employees well abreast of scientific, professional, technical, and management developments both in and out of government), and Executive Order 10800 (1959) which implements the 1958 Act. **(357)**

PROCTOR, JOHN H. and WILLIAM M. THORNTON. Analyzing a training report. IN THEIR **Training: a handbook for line managers**. New York: American Management Association, 1961. pp. 164-182.

Factors to be considered by the line manager when analyzing a training report are discussed: organization, clarity, units of measurement, adequacy of sampling, cause and effect discussions, and novel or grandiose findings. Statistical procedures used by training specialists in reports are briefly explained (frequency distributions, measures of central tendency, measures of variation, comparable scores, correlation, expectancy charts, and measures of confidence). Results reported on individuals who have completed training may be evaluated by consideration of six areas briefly delineated at the conclusion of the chapter. **(358)**

REITH, JOHN L. Organization of training. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook**. New York: McGraw-Hill, 1967. pp. 493-506.

Factors which affect the establishment of the training function, the growth of the training function, and resultant needs for organization, policies, and procedures are discussed. Alternative organizational structures of a large training department are presented, and changes which take place in the training director's job as he becomes a line manager in his own right, with the need for applying sound principles of management, are examined. Decentralized training, policy administration, and the importance of long-range planning are reviewed. **(359)**

ROSE, HOMER C. Management functions in a training program. IN HIS **The development and supervision of training programs**. Chicago: American Technical Society, 1964. pp. 74-104.

Management functions are completely integrated, and each affects the other. For purposes of clarification, specific aspects of the five major functions of management within a training program are discussed separately: planning, organizing, directing, coordinating, and controlling. Illustrations and diagrams support the text. **(360)**

ROSE, HOMER C. Planning and directing the training program. IN HIS **The development and supervision of training programs**. Chicago: American Technical Society, 1964. pp. 136-171.

In this chapter three major elements in planning and directing training programs (after the three aspects of determining needs) are discussed in detail: assessing available training resources; planning detailed programs to develop required skills; and directing and evaluating the training program in operation. Training resources are considered under the headings of Staffing (instructor qualifications and loads); Budget (steps in preparation and guides to administration), and Training Materials. A chart relates resources (audiovisual aids) to instructional methods (lecture-discussion, demonstration, written materials, application of tools and equipment) and student activities (listening, discussing, looking, manipulating, reading, working problems, designing, for example). The importance of a system of controls to insure against duplication and omission and to facilitate proper emphasis is discussed under Plan of Instruction. The need for specific objectives is emphasized and examples of specific objectives and performance standards are given. Several guides for curriculum development are discussed and a five-point review of the specific steps in developing a curriculum or lesson plan is presented. Three charts illustrate the total process of developing courses of instruction, selecting and assigning students, providing training, evaluating students' progress, and making post-training job assignments. In the section entitled Directing the Process of Training, attention is called to the need for considering fundamentals of the learning-teaching process (covered in Part II of this book) and of sound human relations, effective communication, and management principles essential to the process of directing (also discussed elsewhere). In this particular section the following elements are added and discussed: the orientation of new instructors and staff members; aspects of evaluation which are an inherent part of the training program (student motivation, amount of student guidance, standards for student achievement, and evidence of creative effort); the supervisor's use of time; and general evaluation of the training supervisor (or director). A self-evaluation checklist considering planning, personal relations, development of instructors, personal habits, and attitude is included, as well as a time analysis form listing methods for improving planning and organizing, directing, evaluating, staff development, and self-development. **(361)**

ROSENBERGER, HOMER T. **How to organize and administer an employee training program.** Washington, D.C.: Society for Personnel Administration, 1956. 35 pp.

The author discusses some goals that are basic in developing a large staff by means of training and attempts to assist executives and training directors to anticipate problems which occur frequently in planning and conducting employee training. *(USCSC 4, edited)* **(362)**

SERBEIN, OSCAR N. **Educational activities of business.** Washington, D.C.: American Council on Education, 1961. 180 pp.

A report is presented of a research project conducted by the Graduate School of Business of Columbia University to determine the extent, pattern, and content of the training and educational activities now conducted within business organizations in the United States. Chapter titles describe the contents: (1) Contributions of Business to Education; (2) Administrative Aspects of Educational Activities of Business; (3) Structure of Major In-Company Educational Programs; (4) Examples of Major In-Company Educational Programs; (5) Other Educational Programs; (6) Out-of-Company Training; (7) A Case Study; (8) Business and the Traditional System of Education. **(363)**

SHAFFER, DALE E. Control through measurement: meeting objectives as a means to justify training. **Training directors journal** 18:9, September 1964. pp. 39-50.

The activity of measurement as a management control device for use by the training director in justifying training programs (primarily existing programs rather than new ones) is discussed. The purpose of the article is to describe certain factors and methods applicable in the controlling of training programs and to show how the results of effective measurement can be used to defend these programs. The following basic questions about training programs are discussed first: (1) What are the specific objectives of the training?; (2) What changes in the individual is it designed to bring about?; (3) How will these changes benefit the organization in both the short run and long run?; (4) What organizational inefficiencies will occur if such training is not given?; (5) What proof do you have that the training will improve individuals and do the things you say it will do?; (6) What evidence do you have that the results of the training will more than compensate for the cost involved? The article concludes with a discussion on gathering information for control of training through devices to measure and to check on what is being accomplished. The topics discussed are: opinion as a factor of control, including sample questionnaires; and quiz results as a factor of control, including suggested steps for using tests: (1) establish specific changes desired; (2) measure group knowledge and understanding at the start of training; (3) conduct training; (4) measure at the conclusion of training; (5) compare the results of the two measures. **(364)**

Should the training function be located within the personnel office, or should it report directly to management? **Personnel administration** 24:4, July-August 1961. pp. 57-60.

Opinions from persons associated with government, industry, and a university are provided. *(USCSC 4, edited)* **(365)**

STATON, THOMAS F. Designing and administering a training program. IN HIS **How to instruct successfully: modern teaching methods in adult education.** New York: McGraw-Hill, 1960. pp. 267-286.

Types of training programs, how to determine the type suited to the needs of a particular organization, and some guides for designing and administering training programs are presented. Supervisor-conducted on-the-job training programs, apprentice training programs, and training courses are covered; brief comments on follow-up training are included. Suggested readings are cited. **(366)**

TARAL, NICK L. Reference files for training directors: the fundamentals of organizing reference materials for training use. **Training directors journal** 17:1, January 1963. pp. 14-19.

This is a step-by-step guide to reference filing. Major topic headings describe the contents: What Is a Reference File?; Getting Started (six preliminary steps); Putting the Plan in Operation; The Filing System (creating your own system); Cross-Reference Filing; Filing the Material; Checking Materials In and Out; Filing Other Materials; Personnel Files; Conclusion. **(367)**

U. S. CIVIL SERVICE COMMISSION LIBRARY. **Planning, organizing, and evaluating training programs** (Personnel bibliography series no. 18). Washington, D.C.: The Library, January 1966. 87 pp.

References are listed in this annotated bibliography under the following headings: Training Programs and Activities in the Federal Government; Philosophy, Policies, and Objectives of Training; Organization for Training (qualifications, responsibilities and status of the training staff, and developing and evaluating the instructor); Program Development and Implementation; Determining Needs for Training; Evaluation of Training; Surveys of Training Programs and Activities in Business and Industry; Training Programs and Activities in the Public Service; Selected Research Studies on Training. **(368)**

U. S. MANPOWER ADMINISTRATION. **The Manpower Development and Training Act; a review of training activities.** Washington: U.S. Govt. Print. Office, 1967. 22 pp.

The booklet summarizes the history and accomplishments of the Manpower Development and Training Act, including reference to related legislation, training results, characteristics of MDTA trainees, new programs, and the outlook for the future. A bibliography listing more detailed material is included. *(USCSC 1, edited)* **(369)**

WAGNER, ALAN B. A new pattern in employee development: participation at International Minerals for organization development. **Training and development journal** 21:4, April 1967. pp. 56-60.

A distinction is made between training as it has traditionally functioned and employee development as it is used in modern organizations. The responsibility of the employment development staff to act as internal consultants, and hence as organizational change agents, is focused on. The employment development personnel are seen as working not only with individual needs but with the climate in which the individuals function and the organizational system. Through the establishment of helping relationships with key persons among management, the employment development staff is seen as (1) discovering the organization's objectives, its problems, and the importance given to each problem; (2) determining individual needs for acquiring technical knowledge and developing organizational skills; (3) collaborating with the part of the organization affected to develop a strategy for meeting individual needs simultaneously with solving organizational problems; (4) providing specific skill and management development programs based on the strategy developed; and (5) using an organizational problem-solving approach to follow up the individual development programs. It is recommended that a problem-solving team be established to develop problem-solving strategies and implementation techniques and to reevaluate individual and organizational needs. The teams would be composed of a cross-section of the part of the organization affected, and an employment development person would act only as a consultant to the team. Such an approach would develop in members of the organization the capacity to analyze their own problems and to design strategies to solve them; it would also leave the employment development staff free to create specific programs and to offer assistance to other parts of the organization. Thus, the total influence of employment development would be multiplied. **(370)**

WALSH, JOHN. Legal aspects of training. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook.** New York: McGraw-Hill, 1967. pp. 626-633.

Legal matters which the training director may be called upon to understand because of his position as an administrator of training activities are discussed in the areas of wages and hours, apprenticeship, federal training legislation, and reproducing copyrighted material. Also covered are company policy and union agreements. The continued growth of training nationally and internationally will increase the amount of legislation pertaining to it. The training director is a logical person to help fashion local and broad legislation within his special field. **(371)**

TRAINING DIRECTOR–ROLE AND TRAINING

BELMAN, HARRY S. and JOHN E. BLIEK. The head of the training function. **Training directors journal** 13:2, February 1959. pp. 42-53.

The activities, relationships, and responsibilities of the head of the training activity were analyzed by replies to questionnaires. Titles assigned to the head of training are discussed: director, supervisor, manager, in charge of, and coordinator. The duties of the position are defined: instruction, development and preparation of programs, training evaluation, advising, administration, general professional activities, and related and unrelated nontraining activities. Responses to questionnaires also show that the duties shown in job descriptions do not reflect the total activities. The content of job descriptions should be examined. **(372)**

BROWN, DAVID S. Some vital new dimensions for training. **Training and development journal** 20:3, March 1966. pp. 21-27.

This paper underlines the important role of the training staff in complex organizations. The trainer is seen as an agent of change; this change is brought about in different ways, not only through the classroom or career-planning, but through the insight the trainer has into problems of organization and system. The trainer may be seen as a consultant to high-level management, an arranger for the consultation of others, and even as a systems analyst. He is also an important link in the information-giving process. **(373)**

CASSTEVENS, E. REBER. The training director's job. **Training directors journal** 19:7, July 1965. pp. 18-20.

The job of the training director is changing. It calls for more managing and less practicing. The director now should be "... a change agent, a policy molder, a planner, an effective management consultant." *(USCSC 4, edited)* **(374)**

CUNNINGHAM, J. W. Enlargement and professionalization of the training function. **Journal of the American Society of Training Directors** 14:6, June 1960. pp. 11-15.

The article briefly reviews training history during the past 25 years and explains the increase in emphasis on management training as being due to different requirements of management jobs on various levels and dynamic conditions of management jobs. It leads up to the importance of the training director, his duties and responsibilities, and stresses that he should "belong to management." *(USCSC 4, edited)* **(375)**

DEVINE, DONALD W. **The critical requirements of training directors** (Doctoral dissertation). Philadelphia: University of Pennsylvania, School of Education, 1962. 231 pp.

The purposes of this study were: (1) to determine the nature of the effective and ineffective critical behaviors of training directors as reported by training directors and their superiors; and (2) to determine the critical requirements for training directors as stated in behavioral terms. Interviews were conducted with training directors and their superiors in 92 business organizations located in ten states. The method of research was the critical incident technique. Interview information was transferred from interview forms to analysis cards and sorted according to effective or ineffective behaviors. Thereafter, incidents were examined to insure that the necessary amount of detail had been given. Four major areas of classification were inductively derived from an analysis of the reported critical incidents. They were: (1) the training director and his relationship to his staff; (2) the training director and his relationship to management; (3) the training director himself; and (4) the training director and his relationship to training programs and trainees. In concluding, the author lists several implications of the study. *(ASTD)* **(376)**

DEVINE, DONALD W. What to look for in selecting a training director. **Personnel** 41:2, March-April 1964. pp. 57-61.

The author draws a profile of the good training director and offers guidance on how to identify him. *(USCSC 4, edited)* **(377)**

GARDNER, NEELY D. Mr. Training director–his job. **Journal of the American Society of Training Directors** 14:8, August 1960. pp. 16-23.

The article examines ten propositions relating to the training director's job which may be used to develop a theory of training and provide a guide against which the training director can examine his activities. *(USCSC 3, edited)* **(378)**

GILL, THOMAS W. The trainer as an administrator. **Training and development journal** 21:3, March 1967. pp. 32-34.

The training director functions much like an administrator. He is more interested in the growth and efficiency of the training office than in actually teaching. His functions are integrated; he (1) tries to assist in determining training needs; (2) becomes involved in career development; (3) meshes training with employment; and (4) helps to establish the necessary procedures to carry out the training policies. In administering policies he must be open to new ideas, and must have the courage to withhold promotions and to shift people on his staff. The most important thing he does is teach; he seldom teaches classes, but he will constantly be teaching by example. **(379)**

HURTADO, TOMAS L. P. What management expects of training advisors. **Training directors journal** 18:6, June 1964. pp. 29-31.

The article presents guidelines on what training directors should be, know, and do, and amplifies these statements by way of explanation. *(USCSC 4, edited)* **(380)**

IVANCEVICH, JOHN M. and JAMES H. DONNELLY. Steps toward professionalization of training directors. **Personnel journal** 45:11, December 1966. pp. 662-667.

Training directors must be able to evaluate training programs to ascertain whether they are achieving their goals. The author discusses methods of improving the knowledge or learning capacity of trainees. He also reports on a preliminary survey of training directors' opinions about these methods. He finds that as far as knowledge is concerned, training directors have a fairly accurate picture of the most and least effective methods of its acquisition. Further research is required, however. *(USCSC 1, edited)* **(381)**

LERDA, LOUIS W. and LESLIE W. CROSS. Performance-oriented training–program implementation. **Journal of the American Society of Training Directors** 16:6, June 1962. pp. 22-29.

The article discusses the role of the training director in obtaining the active support and participation of management in setting up a training program and points out specific areas of his responsibility: pilot groups, training facilities and equipment, preparation of leaders and instructors, coordination of training activities, and application of newly acquired knowledge. A sample schedule for implementing a program is included. *(USCSC 4, edited)* **(382)**

LIVINGSTON, ROBERT T. New horizons for training directors. **Journal of the American Society of Training Directors** 14:3, March 1960. pp. 16-25.

The author sees the training job as a fourfold program: training, educating, developing, and intercommunicating, with emphasis on the last, which the author examines and explains in greater detail. *(USCSC 4, edited)* **(383)**

LYNTON, ROLF P. and UDAI PAREEK. Research to promote training. IN THEIR **Training for development**. Homewood, Ill.: Richard D. Irwin, Inc. and The Dorsey Press, 1967. pp. 383-398.

The essential role of the professional trainer as action researcher is discussed. A general treatment of research, including action research, is followed by examples of questions that trainers might study, grouped according to various phases of the training process. Some specific steps for action are suggested. Two readings (reprinted) conclude the chapter: The Process of Action Research, by Udai Pareek and Adarsh Khanna; and Workshop for Action Research Trainers, by Stephen M. Corey and Udai Pareek. (The latter contains a sample agenda of an action research workshop for trainers.) **(384)**

MAGER, ROBERT F. The instructional technologist. **Educational technology** 7:9, May 15, 1967. pp. 1-4.

A brief description of some of the techniques and procedures which should be at the command of the instructional technologist are presented under the following headings: (1) task analysis; (2) objectives specification; (3) target population specification; (4) criterion development; (5) process development; (6) material selection; (7) system improvement; (8) implementation analysis; (9) change induction; (10) technological advancement; and (11) instructor training. **(385)**

PROCTOR, JOHN H. and WILLIAM M. THORNTON. Preparing a training program. IN THEIR **Training: a handbook for line managers.** New York: American Management Association, 1961. pp. 101-122.

The functions of the line manager in training administration are discussed. Before preparing a training program, it must first be determined whether training will solve a particular problem or problems. Steps in preparing a training program are discussed: setting goals and objectives; determining whether to use outside agencies and facilities or developing in-company programs by preparing a program syllabus; selecting methods of instruction; selecting instructors; having instructors prepare in-depth (lesson plans, selection of aids, rehearsals); and administering the program (scheduling equipment, space, and participants; measuring results; maintaining records; notifying participants of course details; and attending kick-off meetings). The line manager must also administer man-to-man or on-the-job instruction. **(386)**

REYNOLDS, HELEN EVANS, with JOHN C. DRAKE. Eight years as director of inservice education. **Nursing outlook** 11:2, February 1963. pp. 98-101.

Ten principles around which an inservice program should be built, based on the author's experience in administering such a program at Research Hospital in Kansas City are: (1) know what the Department of Nursing is trying to do in your particular hospital; (2) make sure others in the department are clear on your aims and your place and function in the total scheme of things; (3) keep all courses up to the minute and retain no course or program unless current needs justify having it; (4) base all programs on the needs as pointed up by the supervisory personnel working with staff day by day; (5) relate your work to the specific needs of the individuals in the department; (6) keep long-range aims in front of you so that occasional short-range frustrations will not be too discouraging; (7) let evaluation serve you as a continuous belt in an assembly line, constantly checking and rechecking results; (8) learn to find pleasure in the achievements of others; (9) be ready for tomorrow while busy with today; (10) constantly ask yourself: am I contributing directly or indirectly to the improvement of the care of the patients? **(387)**

SILVERN, LEONARD C. Professionalization of training . . . the MS in training administration. **Journal of the American Society of Training Directors** 15:8, August 1961. pp. 29-32.

This is a proposal for development of an MS program in training administration. It includes an example of a curriculum for the degree program. *(USCSC 4, edited)* **(388)**

WHITLOCK, GERALD H. Trainer education and training. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook.** New York: McGraw-Hill, 1967. pp. 527-555.

The purpose of the chapter is to delineate the approximate boundaries of the training director's position and to provide a basis for building specific preparatory education programs. Toward these ends, the following approach is used: (1) a review of attempts to delineate the scope of the job of training director; (2) a presentation and discussion of data concerning the educational background of training directors; (3) a discussion of educational prerequisites for training jobs; (4) a discussion of the results of a study of the current status of course offerings in the field of training by institutions of higher learning; and (5) a discussion of inservice training and self-development. Various tables support the discussion. References are included. **(389)**

INSTRUCTORS–SELECTION AND TRAINING

ADAMS, WILLIAM R., THOMAS HALE HAM, BETTY M. MAWARDI, HENRY A. SCALI and RUSSELL WEISMAN, JR. Participation of clinicians in a study of teaching. **Journal of medical education** 42:3, March 1967. p. 274.

This abstract is a report of a study of five clinicians chosen at random to participate in a study of methods of teaching in a clinical clerkship. Each participant observed and recorded the presentation to the preceptor of the case, the visit with the patient, and the discussion of diagnosis and treatment. Eight two-hour seminars were held to review and discuss these observations. One conclusion drawn was that a course based on a naturalistic study of teaching leads to increased self-awareness about one's style of teaching and about specific needs of students. **(390)**

AMIDON, EDMUND J. and NED A. FLANDERS. **The role of the teacher in the classroom.** Minneapolis, Minn.: Association for Productive Teaching, 1967. 102 pp.

Designed for teachers and supervisors directly involved in the teaching-learning process, this pamphlet outlines conditions and tools required for understanding and improving teacher behavior in the classroom. The assumption is that a teacher can be helped to define his own concept of desirable or ideal teacher behavior and modify his behavior in the direction of that ideal. Chapters include: (1) Introduction; (2) Interaction Analysis as a Feedback System; (3) Using and Interpreting Interaction Analysis; (4) Research on Teacher Behavior; and (5) Interaction Analysis and Behavior Change. References are appended. Percentage tables are interspersed throughout. This manual is part of a training kit for interaction analysis (a system for observing and analyzing teacher behavior in the classroom for use in understanding and changing this behavior). The kit includes: (1) training tapes which allow the listener to sit in on live classroom situations; (2) training tapes manuals consisting of completed tallies of the taped exercise for comparison, blank tally sheets, analysis of exercises, and 31 packets of extra tally sheets and matrix forms. The kit comes in two levels. The level II kit contains, in addition to the items in the first kit, a Teaching Pattern Analysis Manual (which focuses on description, identification, and interpretation of teaching patterns); and transparencies to be used with it are available. **(391)**

AMIDON, EDMUND and ELIZABETH HUNTER. **Improving teaching: the analysis of classroom verbal interaction.** New York: Holt, Rinehart & Winston, 1967. 221 pp.

Teaching is an interactive process, primarily involving classroom talk which takes place between teacher and pupils during certain definable teaching activities: motivating, planning, informing, leading discussions, disciplining, counseling, and evaluating. A Verbal Interaction Category System (VICS) divides talk according to whether it consists of presenting information, asking questions, acceptance of or rejection of ideas or feelings, giving directions, or silence. Thus, the VICS and the teaching activities are two separate and distinct entities, both used to describe teaching. The book presents situations that involve classroom talk during teaching activities (a chapter is devoted to each of the above seven kinds of activities), and the VICS is used to analyze the teacher-pupil talk. Situations include experiences in kindergarten through the 9th grade. Each situation is accompanied by an analysis and a skill session. The analyses examine the talk that takes place, and the skill sessions give readers an opportunity to practice various kinds of verbal behavior so that they may be more capable of selecting appropriate verbal behavior for each of the teaching activities. Selected references are included, and the appendix presents in detail the Verbal Interaction Category System. **(392)**

BLYTH, JOHN W. and M. ALTER. **How to improve your supervisory training skills.** New York: Argyle Publishing Corporation, 1966. 262 pp.

This self-instructional, programmed course teaches the improvement of training skills. Upon completion of the program, the supervisor will be able to prepare for training, to train individuals, and to maintain performance. Problems and examples in the course require the supervisor to make decisions based on training principles rather than on a detailed knowledge of the specific training problem. The program is designed to be used for independent study or as supervised training; a leader's guide is available for the latter use. Chapter titles are: Why Good Training Matters; What This Course Is About; Preparing to Train; Training Individuals; Establishing Behavior; and Maintaining Behavior. **(393)**

CLAROS, THOMAS S. Tailor-made training at little or no cost. **Public personnel review** 25:4, October 1964. pp. 225-227.

This article is of interest to training directors or personnel officers who have limited funds for training their employees. The Training Division of the Personnel Department of the State of Connecticut was able to prepare a training program for all supervisory personnel of the Office of Jail Administration at a minimum cost. Many experts from various state agencies participated as leaders in a training conference at no charge. As a result, supervisory personnel of the Office of Jail Administration received valuable training even though funds were limited. The author summed up some of the things training directors or personnel officers can do in getting experts at no cost. *(ASTD)* **(394)**

DALY, ANDREW A. Selecting and organizing the training staff. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook.** New York: McGraw-Hill, 1967. pp. 507-526.

A training director must develop a staff that will meet the needs peculiar to his organization. To determine those needs he should analyze the organization in terms of its purpose, size, and structure; the number and complexity of its products; its level of technology; its past and present personnel policies, particularly with regard to training; the education and past experience of its employees; and the attitudes of its key executives toward training. Once he knows the nature and needs of the organization, he can estimate the training staff required, define staff positions, decide how to make optimal use of his budget, recruit and select trainers, and plan their orientation to the organization. All of the above aspects of developing a training staff are discussed in detail in the chapter. **(395)**

DePHILLIPS, FRANK A., WILLIAM M. BERLINER and JAMES J. CRIBBIN. Check list for trainer self-evaluation. IN THEIR **Management of training programs.** Homewood, Ill.: Richard D. Irwin, 1960. pp. 161-163.

A checklist of 42 questions is presented for systematically analyzing training sessions *in toto* from recordings. Questions are arranged under the following headings: (I) Preparation–content, the environment, the trainees; (II) Presentation–introduction, session methodology, conclusion. **(396)**

DOYLE, ROBERT J. Instant faculty for supervisory training: using line people as trainers in small business. **Training and development journal** 21:3, March 1966. pp. 50-53.

Suggestions are made for setting up a training program which uses people within the organization as trainers. Staff and line managers, as well as specialists, would be brought into the training conference to help the students and conference leaders to understand their roles and the dependency of one role upon another. Program objectives would include acquainting line and staff supervisors with other company operations in order to improve internal communication, coordination, and professional development. One of the biggest obstacles in such a program is stage fright on the part of the novice trainers. This problem could be alleviated by (1) conducting the conference as an interview, or (2) helping the reticent ones prepare support material in the form of handouts or visual aids. **(397)**

ERIC CLEARINGHOUSE ON EDUCATIONAL MEDIA AND TECHNOLOGY. **A basic reference shelf on the new media and teacher training,** by Henry T. Ingle. Stanford, Calif.: Stanford University Institute for Communication Research, May 1968. 11 pp.

This publication contains annotated references on 18 sources arranged under the following headings: References Related to Trends on Teacher Education, Characteristics of New Media in Education, Methodological Issues in Teacher Training and New Media Research, Periodicals on Teacher Education and/or Instructional Technology (9 periodicals listed and described). There is also a list of 9 organizations and associations concerned with teacher education and instructional technology. **(398)**

FOREMAN, WAYNE J. Management training in large corporations. **Training and development journal** 21:5, May 1967. pp. 11-17.

The training director can select the most competent trainers available if he: (1) becomes familiar with the educational journals which report research on teacher competence; (2) can get a copy of *Wisconsin Studies of the Measurement and Prediction of Teacher Effectiveness,* by A. S. Barr, *et al.,* one of the best summaries of research on teacher competence; and (3) can use methods and findings of research on teacher competence to set up his own research on trainer competence. These findings of studies on teacher competence can be used as hypotheses to test in the business setting; the methods and techniques of evaluating teacher competence can be adapted to the industrial situation. **(399)**

JUNKER, ELMER S. Hiring, training, and evaluation of instructors, and a method of equating salary with performance. **Training directors journal** 18:4, April 1964. pp. 23-30.

Techniques practiced and forms used in the Technical Training Department of the Military Field Service Division of the Burroughs Corporation in the hiring, training, and evaluation of instructors are discussed. The basic technique involves ratings of instructors by their supervisors. Three evaluation forms and two charts comparing instructor ratings and salaries are included. **(400)**

KERSH, BERT Y. **Classroom simulation: A new dimension in teacher education.** Monmouth, Ore.: Oregon State System of Higher Education, Teaching Research, June 30, 1963. 101 pp.

A simulated classroom setup for preservice teachers can allow them to practice new behaviors without embarrassment or censure, to learn how it feels to be "tested" by students, to try different ways of handling problem situations, to experience bored and confused expressions of students, and to learn to shift from one topic to another at appropriate times. Research has been undertaken to develop the principles, procedures, and skills needed to produce classroom simulation materials for preservice education of elementary school teachers, to develop techniques to carry out the procedures, and to determine whether "realism" is needed in such a simulation. The theoretical framework, the development of the materials, and the experiment itself are described. Appendices describe simulation facility equipment and controls, orientation materials, and Program I, Scripts and Rating Standards. A bibliography is appended. **(401)**

KING, DAVID. Selection and training of instruction staff. IN HIS **Training within the organization.** Chicago: Educational Methods, 1964. pp. 173-181.

The subject is discussed under four headings: (1) Training of Line Managers in Instruction (the way line managers can acquire a knowledge of the analysis of skill, the design of training exercises, the setting of training targets, and the recording of performance); (2) Selection of a Training Officer (What are the requirements of the job?, What are the requirements of the person?, How will the post be advertised?, What selection procedures will be suitable?, How will the appointment be confirmed?); (3) Training a Training Officer (What additional specialist knowledge of training is required?, What does the person need to know about the company itself?); (4) Selection and Training of Instructors (selection of instructors, training of instructors, instructing techniques, and skills and content of the work to be taught). **(402)**

LYSAUGHT, JEROME P. A survey of industrial training-for-trainers. **Training directors journal** 18:1, January 1964. pp. 3-11.

Results of a survey of seventeen major corporations on selection, training, and evaluation of trainers are reported. *(USCSC 4, edited)* **(403)**

McMAHAN, MARIE. Teacher education and media. **Audiovisual instruction** 11:6, June-July 1966. pp. 447-449.

The problem of teacher education in media is currently compounded by numerous factors. The purpose of the Association of Organizations for Teacher Education (AOTE) formed in 1960 by the American Association of Colleges for Teacher Education is to coordinate similar efforts of teacher-education organizations so that their common objectives may be more fully realized and to facilitate cooperative and joint undertakings. A report being proposed by the Teacher Competencies Study will deal with the following broad areas of competency in the media field: (1) theory, (2) message design, and (3) skill area. Other developments and contributions indicate a concern for improved efforts at teacher education in audiovisual media. **(404)**

McMAHON, ERNEST E. University policies and training problems. **Training and development journal** 20:5, May 1966. pp. 30-33.

Some of the reasons friction may arise when training directors attempt to arrange courses through universities are explained. Problems discussed include organization, costs, instruction, residence and meals, materials, faculty, workload, the big name, and the part-time teacher. **(405)**

MICHIGAN UNIVERSITY SCHOOL OF EDUCATION. **Helping teachers change their behavior.** Ann Arbor, Mich.: The University, 1963. 163 pp.

This publication describes an inservice training project which uses sound filmstrips, interaction analysis, and self-directed experimentation. *(USCSC 4, edited)* **(406)**

MUNIZ, PETER. Empathy training for the management development trainer. **Training and development journal** 21:10, October 1967. pp. 24-28.

The technical trainer obtains his knowledge from books and other reference sources; the management trainer needs exposure as a supervisor before he can develop empathy for his supervisor-trainees. The closer a trainer gets to "sensitivity"-based training, the greater the need for him to fulfill a tour of duty as a supervisor. Only as a supervisor can the trainer experience the satisfaction, anxieties, frustrations, and problems of leadership. The need for this type of experience is not stressed enough. Environmental factors which affect the success of management development efforts are leadership climate, organizational climate, and organizational culture. **(407)**

NATIONAL ASSOCIATION FOR PUBLIC SCHOOL ADULT EDUCATION. **Adult basic education, a guide for teachers and teacher trainers**. Washington, D.C.: NAPSAE, April 1967. 212 pp.

A teacher training manual developed in three adult basic education workshops sponsored by the National Association for Public School Adult Education (NAPSAE) outlines a scheme applicable both to trainees and to their disadvantaged clientele. Teacher training methods include role playing, talks by experts, demonstrations and exhibitions, field trips, films, small group discussion, work groups, and individual study. The adult basic curriculum includes reading skills, language arts, and concepts in mathematics, citizenship, family and community life, and adjustment to the working world. To cope with such problems as low student motivation and self-image, economic and cultural deprivation, fear and hostility, and values and behavior at variance with middle-class and upper-class norms, the teacher needs above-average resourcefulness and human understanding and must develop skill in selecting and using printed materials (notably the major sequential literacy systems), audiovisual aids, classroom techniques, counseling activities, and standardized tests. In working with non-English-speaking adults, oral teaching should be stressed. (The document includes a sample one-week training session, evaluation sheets and other forms, suggested activities and resources, six appendixes, and numerous references.) *(ERIC 4)* **(408)**

POPHAM, W. JAMES. Instructional product development: two approaches to training. **AV communication review** 15:4, Winter 1967. pp. 402-411.

This article examines the instructional product development process and two divergent approaches to the training of personnel competent to engage in that process. An instructional product consists of any set of replicable instructional events which produce a consistent effect upon the intended learners. Among the several forces which have contributed to the recent attention given instructional product development are the impact of the programmed instruction movement, the increased financial input into education on the part of the federal government, and a growing impatience on the part of educational researchers and teachers with the impact of their contributions on the field of education. Many organizations committed to the development of instructional products are forced either to postpone their activities or to accept untrained personnel. Two different approaches to training product developers are described. The first is extended graduate-level training occurring in a university setting; the second is a compressed program more suitable for on-the-job training and takes place in a nonuniversity environment. **(409)**

ROMOSER, DAVID RICHARD CHARLES. Change in attitude and perception in teacher-education students associated with instruction in interaction analysis. **Dissertation abstracts**, vol. 25, 1965. pp. 5770-5771.

The purpose of this study was to determine whether three class periods of instruction in Flanders' System of Interaction Analysis (FSIA) would lead to changes in attitude and in descriptions of a model teacher. Factor analyses of the intercorrelations between the various test scores revealed some interesting relationships. Permissive tolerance of non-conformity in children and favored leniency in the control of children was related to radicalism, self-sufficiency, more ability, dislike for definiteness, and a slight tendency towards dominance and reserve. Another pattern related stronger superego, integration (adjustment), planful persistence, desire for definiteness and punitive intolerance of non-conformity in children. Scores describing the model teacher as "ideal," "friendly," "motivating," and "self-assured" were associated with stronger superego, less verbal ability, and approval of tolerance and leniency. This study demonstrated that three days' instruction in FSIA could change the attitudes of teacher-education students toward lenient tolerance although it did not change their perceptions of a model teacher. **(410)**

ROSE, HOMER C. Instructor training. IN HIS **The development and supervision of training programs**. Chicago: American Technical Society, 1964. pp. 172-203.

Brief histories of several instructor training programs in the Armed Forces and federal agencies are presented to illustrate principles and concepts of value in developing instructors. The relative importance of the two aspects of instruction (content knowledge or skills, and teaching competency) depends on the difficulty and level of the subject to be taught; the aptitude, age and ability of students; and objectives of the course. A simple analysis of the instructor's job is presented as the basis for discussion of qualifications of instructor trainers and instructor training curriculums (several sample agendas are included). Specific aspects of pre-course instruction, evaluating student instructor progress, and follow-up are discussed. Two examples of evaluation guides to be used in instructor training and 9 specific procedures for evaluating the instructional process are presented. **(411)**

SARASON, SEYMOUR B., KENNETH S. DAVIDSON and BURTON BLATT. **The preparation of teachers.** New York: John Wiley & Sons, 1962. 124 pp.

Two conclusions evolved from studies of elementary teachers and their classes: (1) most teachers teach in a way that reflects the concept that education consists primarily of what we put into children rather than what we can get out of them; and (2) teacher-training programs reinforce this conception. Remedies for this are recommended. Chapters include: (1) Statement of the Problem, (2) The Current Controversy, (3) A Classroom Day, (4) The Teacher as Observer: A Description of an Observational Seminar, (5) Implications and Recommendations, and (6) Some Final Comments. **(412)**

SCHUTTENBERG, ERNEST M. Yes, trainers can be responsible for their own learning. **Training in business and industry** 4:9, September 1967. pp. 24-26.

An experiment in non-directive learning was held with a five-day twelve-man class in instructor training at American Airlines. The final examination was discontinued, the instructor presented himself as a co-learner rather than an authority figure, and the staff presented its material as ideas for the students to use in solving their professional problems rather than as rules to be followed slavishly. Most of the trainees' work was done alone or in pairs; however, there were also group projects, lectures, demonstrations, workshops, and discussions. Each trainee gave two sample lessons during the last two days of the course, the quality of which demonstrated that the course's objectives had been fulfilled. Conclusions were that instructor-trainees can often learn more from each other than from a so-called authority, emotions are as important to significant learning as are concepts and skills, and people will accept the responsibility for their own learning. **(413)**

STATON, THOMAS F. Broadening your qualifications as an instructor. IN HIS **How to instruct successfully: modern teaching methods in adult education.** New York: McGraw-Hill, 1960. pp. 252-266.

The best instruction occurs when an instructor is allowed the freedom of method and technique to leave the imprint of his particular personality and talent on his teaching, but an instructor must also have certain well-defined abilities, usually attainable only by disciplined study and practice, in order to do the best teaching of which he is capable. Areas in which the instructor can study and practice in order to improve the quality of his teaching are discussed: knowledge of psychology; knowledge of the field of education (adult education, technical education, educational methods, evaluation, speech and language). Suggested readings are cited. **(414)**

TEXAS UNIVERSITY. DIVISION OF EXTENSION. INDUSTRIAL EDUCATION DEPARTMENT. **The preparation of occupational instructors: a suggested course guide**. Washington: U.S. Govt. Print. Office, 1965. 176 pp.

This manual contains lesson plans, guides, and handout sheets required by a teacher trainer to teach a basic course in training techniques for the occupational instructor who must begin his assignment with a minimum of preparation. Following accepted training principles, the course provides an opportunity for each prospective occupational instructor to present a demonstration lesson and to benefit from evaluation of his performance. Four-step lessons on specific subjects are alternated with the teaching demonstrations, permitting the occupational instructors to apply what they have learned as the course proceeds. If a recommended class size of 10 is maintained, the course should require 20 hours, including approximately 30 minutes for one demonstration lesson by each occupational instructor. **(415)**

TRACEY, WILLIAM R. Do instructors need first-hand rating? **Training in business and industry** 2:3, May-June 1965. pp. 26-32.

According to this author, one of the most important services a supervisor can provide an instructor is evaluation, the fundamental purpose of which is to improve instruction. Classroom visitation, a supervisory technique which is now in its demise, is emphasized because it allows the supervisor to evaluate directly, identify needs, and plan and implement a program for improvement. Several agreed-upon principles of evaluation are listed, procedures for classroom visitation are delineated, and the followup conference is discussed.

Also included is a rating scale, "Guide to the Evaluation of Instruction–Rating Standards for Lecture, Demonstration and Conference," which contains specific observable items necessary for valid evaluation. *(ASTD)* **(416)**

TRADE AND INDUSTRIAL EDUCATION SERVICE. **Instructor training for supervisory personnel; leaders manual.** Columbus, Ohio: Ohio State University, College of Education, Instructional Materials Laboratory, Trade and Industrial Education Service, 1955. 109 pp. + appendix.

Instruction plans, student handouts and illustrative charts for a complete course are presented. The course consists of 12 units of instruction to be covered in approximately 15 clock hours, with no more than 10 learners enrolled. The stated basic objectives are: (1) to provide the future tradesman-instructor with an approved method of instruction based on the laws of learning which will enable him to teach others the related technology or the manipulative skills of his trade; and (2) to build a corps of qualified, trained instructors for trade, public service, and industrial occupations in the adult training field. The first two units deal with background material and present an overview of the course, explain its rationale, demonstrate faulty and correct teaching methods, and discuss the preparation of lesson plans. The remaining 10 units are each divided into two parts, the first of which is devoted to a practice instruction demonstration lesson of how to teach a lesson, a job and/or operation. This is organized and presented by a member of the group, followed by group evaluation and criticism. The second part of each unit is used by the instructor-trainer in presenting new phases of instruction that are vital to the member's success as an instructor. Topics covered are: the instructor's personal qualities, the proper seating or positioning of groups assembled for instruction, the use of oral questions in teaching, group and individual instruction, teaching aids, instruction sheets, the instructor as manager, the evaluation of teaching success. The appendix includes: Hints and Suggestions to the Instructor Trainer for the Improvement of the Instructor Training Course, 19 handouts, and 9 charts. Student handouts and instructional aids are available from the publisher in separate folders. **(417)**

VONTRESS, CLEMMONT E. In-service training suggestions for teachers of adults. **Adult leadership** 8:10, April 1960. pp. 291-292, 304-305.

After a brief discussion of adults as students and of adult instructor qualifications, suggestions are offered for inservice training of adult instructors. Assistance should be given the new instructor in principles of teaching, record keeping, selecting and using instructional material, and managing students. Methods suggested include tutorial conferences between the new instructor and the supervisor (with coaching on development of lesson plans); observation of experienced instructors; all-school or all-department conferences; a committee to arrange introductions and orientation for new instructors; special bulletins, handbooks, and a staff manual; access to the supervisor as needed; a professional library; a directed reading program; and home-study courses. **(418)**

WARFIELD, J. W. Preparing personnel for instructional TV. **Audiovisual instruction** 10:7, September 1965. pp. 561-563.

An experiment was conducted in Las Vegas, Nevada, during which the author taught an eight-week course on the utilization of radio-TV in audiovisual education at the Nevada Southern University. The purpose of the course was to provide understanding of instructional television and to allow for development of sufficient skills to produce actual course segments. The thirty participating teachers overcame their lack of experience in audiovisual education and produced a successful series of course segments within five weeks. While it should not be construed as the panacea for all instructional television training, the experiment at Las Vegas can serve as a very useful guideline. *(ASTD)* **(419)**

RESEARCH

BARNES, FRED P. **Research for the practitioner in education.** Washington, D.C.: National Education Association, Department of Elementary School Principals, 1964. 141 pp.

The book is intended primarily for administrators and teachers in elementary schools but is also designed for use by future teachers and professors in education. It is meant to bridge the gap between the need for research in schools and workable approaches to accomplishing that research in reality. Chapter titles indicate contents: (1) The Search for Knowledge (alternative sources of knowledge); (2) The Research Process (characteristics of experimental research, two ways of reasoning, seven steps in the research process); (3) Problems and Hypotheses (researchable problems, development of hypotheses); (4) Populations and Samples (selecting a representative sample, special problems in schools); (5) Variables and Probability (independent and dependent variables, statistical tests of probability, an illustration); (6) Designs and Decisions ("before-after" study with control groups, "after-only" study with control group, "before-after" study with single group, "after-only" study without controls, *ex post facto* experiment); (7) Analysis and Statistics (nonparametric and parametric methods, measurement scales, stating and evaluating the null hypothesis); (8) Statistical Tests; (9) Reporting Results; (10) The Research Literature (books, encyclopedias, literature guides, abstracting and indexing journals, review journals, research journals, general journals also containing research projects, monographs); and (11) Staff Training and Follow-up (some experiments in research training, planning for local research training). **(420)**

BLOOM, BENJAMIN S. Twenty-five years of educational research. **American educational research journal** 3:3, May 1966. pp. 211-221.

Education has made significant contributions to research methods, especially in the use of statistics, computers, mapping of human characteristics, testing, and instructional procedures. Contributions that have changed our thinking about education and learning include studies on: (1) the development of the individual, by E. Erickson, A. Gesell, R. Havighurst, J. Piajet, Howard Growth Study, Berkeley Growth Study, Oakland Growth Study, and the Fels Institute); (2) effects of environment (parents as models, by J. W. Douglas and J. Floud; teaching style of mothers, by R. Hess and S. Stodolsky; language learning in the home, by B. Bernstein, D. McCarthy, and L. Vigotsky; effect of early environment on conceptual development and intelligence, by M. Deutsch, A. Jensen, J. McV. Hunt and R. Wolf; effects of parents and the home on attitude formation in relation to the schools, by J. A. Kahl, D. McClelland, and S. Smilansky; peer group environment, by J. S. Coleman); (3) predictability of human characteristics, by A. Payne, F. Peters, and L. Tucker; (4) modifiability of human characteristics, by K. Kirk, S. Gray, M. Deutsch and M. Smilansky; (5) teaching methods and instructional strategies (models by J. Carroll, J. Gunther and L. Siegel; dialectic approaches, by P. Dressel, H. M. Chauson, E. M. Glaser and R. Suchman); (6) effect of individual differences in learners, by T. M. Newcomb, N. Sanford, S. B. Sarason, G. G. Stern; independence vs. dependence in learners, by C. Houle, C. McCollough, W. J. McKeachie, H. Thelen, and E. L. Van Atta; (7) principles of learning, by J. S. Bruner, J. Dollard, E. Hilgard, N. E. Miller, B. F. Skinner, and R. W. White; and (8) sequence in learning, by N. A. Crowder, R. M. Gagné, and B. F. Skinner. A "strong inference" research strategy, important in education, would include a clear map of the present state of the field, rapid communication among researchers, a search for better ways of asking questions and for research procedures that yield clearer and more definitive results. Such a strong inference strategy would reduce the amount of redundant research, emphasize the research problems of education rather than the methods of research, and nurture a rapid series of fundamental discoveries. **(421)**

BRUNNER, EDMUND de S., DAVID S. WILDER, CORRINE KIRCHNER and JOHN S. NEWBERRY, JR. (eds.). **An overview of adult education research**. Chicago: Adult Education Association of the U.S.A., 1959. 274 pp.

The Bureau of Applied Research, Columbia University, under the auspices of the Adult Education Association, surveyed research in nonvociational adult education. After a general introduction, a major part of the report is given to matters pertaining to the educatee, such as learning, interests, participation, and motivation. The next major section is given to matters pertaining to the educator: organization, program building, methods and techniques, and the role of groups in adult education are discussed. A brief final section is on concerns about education as such, chiefly in terms of evaluation. Suggestions about needed research are included in each chapter. Chapter titles are: An Overview of Adult Education Research; Adult Learning; Motivation to Learn; Attitudes; Adult Interests and Education; Participants and Participation in Adult Education; Organization and Administration of Adult Education; Programs and Program Planning; Methods and Techniques in Adult Education; The Use of Discussion; Leaders and Leadership: Lay and Professional; Group Research and Adult Education; The Community and Its Institutions in Adult Education; and Problems of Evaluation Research. An index is included. **(422)**

CAMPBELL, DONALD T. and JULIAN C. STANLEY. Experimental and quasi-experimental designs for research on teaching. IN Gage, N. L. (ed.). **Handbook of research on teaching.** Chicago: Rand McNally, 1963. pp. 171-246.

The experiment is considered "the only means for settling disputes regarding educational practice, the only way of verifying educational improvements, and the only way of establishing a cumulative tradition in which improvements can be introduced without the danger of a faddish disregard of old wisdom in favor of inferior novelties." The author's concern with experimental design is in the collection of data to control or eliminate factors that would lead to erroneous inferences. Sixteen designs are described, and the validity of each is examined against 12 factors that can jeopardize the validity of inferences. There are 143 references. **(423)**

GAGE, N. L. (ed.). **Handbook of research on teaching.** Chicago: Rand McNally, 1963. 1218 pp.

The two purposes of this handbook are: (1) to summarize, critically analyze, and integrate the body of past research on teaching; and (2) to bring research on teaching into more fruitful contact with the behavioral sciences. Intended audiences are students (graduate and undergraduate) preparing to do research on teaching. Among others who the editor says may find the book useful are training specialists in industry and the Armed Forces. Four major divisions and selected chapter headings are: Part I, Theoretical Orientation–Historic Examples of Teaching Method, by Harry S. Broudy; Logic and Scientific Method in Research on Teaching, by May Brodbeck; Paradigms for Research on Teaching, by N. L. Gage; Part II, Methodologies in Research on Teaching–Statistics as an Aspect of Scientific Method in Research on Teaching, by Maurice M. Tatsuoka and David V. Tiedeman; Experimental and Quasi-Experimental Designs for Research on Teaching, by Donald T. Campbell and Julian C. Stanley; Measuring Classroom Behavior by Systematic Observation, by Donald M. Medley and Harold E. Mitzel: Rating Methods in Research on Teaching, by H. H. Remmers: Testing Cognitive Ability and Achievement, by Benjamin S. Bloom: Measuring Noncognitive Variables in Research on Teaching, by George G. Stern: Part III, Major Variables and Areas of Research on Teaching–Analysis and Investigation of Teaching Methods, by Norman E. Wallen and Robert M. W. Travers: The Teacher's Personality and Characteristics, by J. W. Getzels and P. W. Jackson; Instruments and Media of Instruction, by A. A. Lumsdaine; Social Interaction in the Classroom, by John Withall and W. W. Lewis; The Social Background of Teaching, by W. W. Charters, Jr.; Part IV, Research on Teaching Various Grade Levels and Subject Matters (including Research on Teaching at the College and University Levels, by W. J. McKeachie). There are bibliographies at the end of each chapter. A name and subject index is included. **(424)**

GAGE, N. L. Paradigms for research on teaching. IN HIS **Handbook of research on teaching.** Chicago: Rand McNally, 1963. pp. 94-141.

This chapter displays some of the forms that theoretical work has taken in research on teaching. In the first section, the nature of paradigms as working tools in behavioral research, the place of research on teaching in the whole realm of educational research, and the ways in which theorizing fits into the actual working behavior of behavioral scientists are considered. In the second section, a few paradigms in fields other than research on teaching are considered for their illustrative value. (Some fields are psychopathology, administrative behavior, and group dynamics.) In the third section, paradigms designed explicitly for research on teaching are described, and their implications are examined. The last section considers the possibility of developing a theory of teaching. References are included. **(425)**

GLASER, ROBERT (ed.). **Training research and education.** Pittsburgh: University of Pittsburgh Press, 1962. 592 pp.

Leading men in training research explore the implications of psychological research for training and education under the following titles: (1) Psychology and Instructional Technology, by Robert Glaser; (2) Analysis and Specifications of Behavior for Training, by Robert B. Miller; (3) The Design of Correlational Studies in Training, by Philip H. Dubois; (4) The Prediction of Success in Intensive Foreign Language Training, by John B. Carroll; (5) The Description and Prediction of Perceptual-Motor Skill Learning, by Edwin A. Fleishman; (6) Factors in Complex Skill Training, by Paul M. Fitts; (7) Skilled Performance and Conditions of Stress, by James Deese; (8) Simulators, by Robert M. Gagné; (9) Instructional Materials and Devices, by Arthur A.

Lumsdaine; (10) The Training of Electronic Maintenance Technicians, by Glenn L. Bryan; (11) Proficiency Tests for Training Evaluation, by Norman Frederiksen; (12) On-the-Job and Operational Criteria, by Clark L. Wilson; (13) Experimental Study of Team Training and Team Functioning, by Murray Glanzer; (14) Exercising the Executive Decision-Making Function in Large Systems, by Launor Carter; (15) Recent Developments in Training Problems, by Alfred F. Smode; (16) Identifying Training Needs and Translating Them into Research Requirements, by Theodore Vallance and Meredith Crawford; (17) A Study of the Relationship of Psychological Research to Educational Practice, by Robert M. W. Travers; and (18) A Structure for a Coordinated Research and Development Laboratory, by Thomas F. Gilbert. References follow each chapter. There is an index. **(426)**

HARRIS, CHESTER W. (ed.). **Encyclopedia of educational research.** 3rd edition. New York: Macmillan, 1960. 1564 pp.

This indexed encyclopedia serves the purpose of critically evaluating, synthesizing, and interpreting studies in education and related fields. Among types of articles included in this volume are those dealing with human development, those treating learning and its many related topics, those dealing with the *milieu* and its effects on or relations to various aspects of human behavior, and those describing the particular characteristics of groups of persons (such as physically handicapped). Other sets of articles follow: (1) institutionalization of education, dealing with such topics as the relation of church and state, the character of the community and of the family, and the dimensions of population change; (2) historical studies of education; (3) philosophy of education; (4) functions or major tasks of education, such as administration, curriculum, counseling, instruction, and evaluation; (5) various levels of education; and (6) methods of research. Articles are listed alphabetically in the front of the volume. References are included after each article. **(427)**

HAUSDORFF, HENRY (ed.). **American Educational Research Association paper abstracts** (paper sessions of the 1968 annual meeting). Washington, D.C.: American Educational Research Association, 1968. 374 pp.

Abstracts of approximately 400 papers on all aspects of educational research by various members and invited guests of the Association are presented. The following sampling of topics indicates the content: organizational theory and administrative behavior; research on classroom behavior; supervisory behavior and teacher motivation; verbal behavior; group characteristics; concept learning; decision-making and planning in educational organization; experimental design; curriculum development; development of educational measuring instruments; psycho-social development; variables related to educational outcomes; empirical test research; studies of learning environments; curriculum evaluation; evaluation of teaching strategies; dimensions of individual differences; learning and individual differences; programmed instruction; measurement of complex intellectual processes; micro-teaching; prediction of academic success; special problems in administrative research; problem-solving and thinking; reinforcement; research on special groups; statistical techniques; techniques for interpretation of results; and research on testing. An index by topic and an index of participants are included. **(428)**

KOMOSKI, P. KENNETH. Assessing educational technology. **Educational technology** 6:2, October 30, 1966. pp. 1-6.

Particular strengths and weaknesses in devices of educational technology are pointed out. The first source of both strength and weakness is the research base from which instructional programming has emerged. Corporations, including IBM, GE, Westinghouse, RCA, CBC, Xerox, and the new industry they comprise, represent the second source of strength and weakness within the new educational technology. Research is needed on techniques to enable educators and producers of educational materials to state instructional objectives in a way that would increase the possibility that the new technology can help learners achieve these objectives. **(429)**

MILLER, DELBERT. **Handbook of research design and social measurement.** New York: David McKay Company, 1964. 332 pp.

The purpose of the book is to assist the social science researcher in finding information he needs quickly and in brief form when he is designing and conducting research. Guides are provided to accompany most of the following stages of research design: (1) selection and definition of a sociological problem; (2) description of the relationship of the problem to a theoretical framework; (3) formulation of working hypothesis; (4) design of the experiment or inquiry; (5) sampling procedures; (6) establishment of methods of gathering data; (7) preparation of a working guide; (8) analysis of results; (9) interpretation of results; and (10) publication or reporting of results. Part and chapter titles are: Part I, General Description of the Guide to Research Design and Sampling–(1) An Outline Guide for the Design of a Social Research Problem; (2) A General Statement to Guide the Basic Researcher in the Formulation of Research Problems; (3) The Bearing of Sociological Theory on Empirical Research; (4) Criteria for Judging Useful Hypotheses; (5) Some Observations on Study Design; (6) On the Decisions in Verificational Studies; (7) General Considerations of Research Design; (8) The Shaping of Research Design in Large-Scale Group Research; (9) The Sampling Chart; and (10) A Selected Bibliography on Research Design; Part II, Guides to Statistical Analysis–(1) The Impertinent Questioner: The Scientist's Guide to the Statistician's Mind; (2) A Note on Statistical Analysis in the *American Sociological Review;* (3) The Idea of Property-Space in Social Research; (4) Summary of Common Measures Association; (5) Four Levels of Measurement and the Statistics Appropriate to Each Level; (6) Nonparametric Statistical Tests Appropriate to Various Types of Scales; (7) Computation Guides; (8) A Bibliography of Statistical Guides; and (9) A Specialized Bibliographic Section for the Advanced Student; Part III, Selected Sociometric Scales and Indexes–Section A, Social Status (6 entries); Section B, Group Structure and Dynamics (5 entries); Section C, Morale and Job Satisfaction (5 entries); Section D, Community (4 entries); Section E, Social Participation (5 entries); Section F, Leadership in the Work Organizations (3 entries); Section G, Important Attitude Scales (6 entries); Section H, Family and Marriage (1 entry); Section I, Personality Measurement (2 entries); and Section J, An Inventory of Measures Utilized in the *American Sociological Review* During 1951-1960; Part IV, Research Costing and Reporting–(1) Guide to Research Costing; (2) Specifications for Sociological Report Writing; (3) Form for Sociological Report Writing. **(430)**

Research and investigations in adult education, compiled by ERIC Clearinghouse in Adult Education, Roger DeCrow, Director. **Adult education** 18:4, Summer 1967. pp. 195-260.

This review contains 177 reports of research completed since the last annual review in 1966. Reports of research in progress are not included. Major categories of research are as follows: Learning Related to Abilities, Interests, Motives; Organization and Administration of Programs; Learning Environments and Formats; Methods and Techniques; Adult Education Personnel; Education of Clientele Groups; and Institutional Sponsors of Adult Education. An author index is included. **(431)**

Research: the expanding concept (entire issue). **Theory into practice** 6:2, April 1967.

Nine related essays are presented: (1) A Trend That Is Questionable, by Willavine Wolf (Recent trends in educational research funding point to a playing down of basic research, and argument is made that both basic research and applied research may be equally valuable in the long run and that equal support should be expended on a continuous basis for both); (2) The Expanding Concept of Research, by Egon G. Guba (Not only have the size and resources of educational research changed markedly, but the concept inself has undergone significant change. The shortcomings of traditional methods, definition of new roles, and trends toward more rigorous analysis and definition of the research process are discussed); (3) Experimentation in Education, by Julian C. Stanley (Experimental design procedures are discussed along with a brief historical overview. Two examples are presented); The Value of Field Studies in Education, by Sidney E. Eboch (The need for information on which to base decisions about adoption or rejection of results of field studies research is discussed. An example is given of how research can guide practice); (5) Developing the "D" in Educational R&D, by Richard E. Schutz (The reasons for lack of attention to development in the practical application of research and development and suggestions for remedying the situation are discussed); (6) ERIC and Dissemination of Research Findings, by Lee G. Burchinal (The makeup and rationale of the Educational Resources Information Center (ERIC) are examined); (7) Effective Curriculum Change Through Research, by Frank J. Zidonis (The problems of curriculum reform are discussed and an illustration of the utilization of research is presented); (8) Emerging Institutions Related to Research, by Howard V. Hjelm (Historical and current overviews of educational research bureaus are presented); (9) The Place of School Personnel in Research, by Devon V. Bates (There is a need for personnel development for operationalizing research goals, strategies, and conclusions, and for engineering product outcomes for application to practical educational situations). **(432)**

SHUMSKY, ABRAHAM and ROSE MUKERJI. From research idea to classroom practice. **The elementary school journal** 63:2, November 1962. pp. 83-86.

Recognizing the fact that research ideas are not practicable in many actual classroom situations, a new research technique–action research–has been developed. In action research, the individual teacher himself carries out the research in his own laboratory or classroom. Though many reports of action research demonstrate how effectively curriculum changes have been put into practice in specific situations, others indicate failure to bring about significant curriculum change. The primary reason for failure is that new ways required by a teacher's action-research plan conflict with old patterns of his teaching behavior; the conflict is shown by his ambivalent feelings, inconsistent behavior, resistance to change, insignificant or superficial change, or by vacillation. This conflict is discussed, and suggestions are offered on how curriculum consultants can approach this problem, help to facilitate action research, and help teachers to implement the findings of such research. **(433)**

SILBERMAN, HARRY and OTHERS. The effect of educational research on classroom instruction. **Harvard educational review** 36:3, 1966. pp. 295-318.

Three charges against educational research were analyzed at a symposium. The charges were: (1) educational research has made no contribution to instructional practice because researchers produce articles in journals rather than well-engineered instructional products; (2) educational researchers are training teachers who simply accept prevailing educational practices instead of teachers who are able to experiment and evaluate; and (3) the educational researcher has no experimental tools or laboratories. **(434)**

TATSUOKA, MAURICE M. and DAVID V. TIEDEMAN. Statistics as an aspect of scientific method in research on teaching. IN Gage, N. L. (ed.). **Handbook of research on teaching**. Chicago: Rand-McNally, 1963. 142-170.

The function of statistics in scientific research is discussed. A number of statistical techniques are classified according to the role (independent and dependent), number, and type (interval, ordinal, and nominal) of the variables involved. There is a 78-item bibliography. **(435)**

GENERAL SOURCES

AMERICAN SOCIETY OF TRAINING DIRECTORS. **Selected bibliographies covering twenty-seven training subjects** (Prepared by Training Brokers for the Training Trading Post Session, 17th annual conference, 1961). Madison, Wis.: 1961. 93 pp.

Topics covered include appraisal, case study, communication, creative thinking, evaluation, interviewing, job instruction, leadership, listening, performance standards, role-playing, sensitivity training, simulation, supervision, teaching machines, training manuals, university management programs, visual aids, and writing. *(USCSC 2, edited)* **(436)**

COUNCIL ON SOCIAL WORK EDUCATION. **A source book of readings on teaching in social work: reprints of selected articles** (Doc. no. 65-58-3). New York: The Council, 1966. 228 pp.

Fifteen significant papers and articles are reprinted as enrichment for social work education at the undergraduate, Master's and post-Master's levels. Materials are grouped under four headings. Part I, Professional Education, contains articles entitled: Distinctive Attributes of Education for the Professions, by Ralph W. Tyler; The Distinctive Attributes of Education for Social Work, by Charlotte Towle; Scholarship and Education for the Professions, by Ralph W. Tyler. Part II, The Teacher, contains articles entitled: The Role of the Teacher in the Creation of an Integrated Curriculum, by Grace L. Coyle; Helping the Casework Practitioner Become a Classroom Teacher, by Charlotte Towle. Part III, Teaching Methodology, includes: Learning Theory and Teaching Method, by G. Lester Anderson; Toward a Methodology of Teaching, by Marguerite V. Pohek; The Small Group in Learning and Teaching, by Mary Louise Somers; Ego-Centered Teaching, by Bernard Bandler. Part IV, Teaching Methods and Techniques, contains: The Lecture as a Method in Teaching Casework, by Helen Harris Perlman; The Use of Audio-Visual Aids in Training, by Eileen Blackey; An Experiment in Teaching Social Casework, by Pauline D. Lide; Interview Observation as a Teaching Device, by Alfred Kadushin; The Process of Group Deliberation, by Eileen Blackey; Teaching Casework by the Discussion Method, by Helen Harris Perlman. **(437)**

CRAIG, ROBERT L. and LESTER R. BITTEL (eds.). **Training and development handbook** (Sponsored by the American Society for Training and Development). New York: McGraw-Hill, 1967. 650 pp.

"This handbook is . . . the first comprehensive collection of knowledge from leading practitioners in the field of personnel training and development. Its purpose is to provide a broad reference source for those responsible for developing human resources in any organization. . . . [It is], in effect, a state-of-the-art report on the subject." Material is included for both the manager of a large training staff and for the beginning or part-time trainer. Chapter titles and authors are: (1) The Evolution of Training, by Cloyd S. Steinmetz; (2) Determining Training Needs, by Richard B. Johnson; (3) The Learning Process, by John D. Folley, Jr.; (4) Testing for Training and Development, by Charles V. Youmans; (5) Evaluation of Training, by Donald L. Kirkpatrick; (6) Job Instruction, by Samuel B. Magill and John E. Managhan; (7) Coaching, by Walter R. Mahler; (8) The Lecture, by Harold P. Zelko; (9) Conference Methods, by Louis W. Lerda; (10) Case Method, by Paul Pigors; (11) Role Playing, by Malcolm E. Shaw; (12) Programmed Instruction, by William E. Hawley; (13) Human Relations Laboratory Training, by Leland P. Bradford and Dorothy J. Mial; (14) Management Games, by Clifford J. Craft; (15) Related Reading, by J. E. Donald Hastie; (16) Correspondence Study, by Hal V. Kelly; (17) Training Aids, by Louis S. Goodman; (18) Supervisor Development, by Harry S. Belman and Thomas F. Hull; (19) Management Development, by Robert B. Burr; (20) Vocational and Technical Education, by Walter M. Arnold and Edgar E. Stahl; (21) Training Facilities, by R. R. Faller; (22) Use of Consultants, by Lester F. Zerfoss; (23) Universities and Their Extensions, by Ernest E. McMahon; (24) Special Programs, by Glenn L. Gardiner; (25) Scientific and Technical Personnel Development by Patrick C. Farbro; (26) Organization of Training, by John L. Reith; (27) Selecting and Organizing the Training Staff, by Andrew A. Daly; (28) Trainer Education and Training, by Gerald H. Whitlock; (29) Planning and Scheduling, by James H. Morrison; (30) Budgeting and Controlling Training Costs, by Ralph E. Boynton; (31) Training Records and Information Systems, by Jesse C. McKeon; (32) Legal Aspects of Training, by John Walsh. There is a name and subject index. **(438)**

ERIC Clearinghouse on Adult Education. Syracuse, N. Y.: Syracuse University, n.d. 5 pp.

The ERIC Clearinghouse on Adult Education (ERIC/AE) has been established by the Library of Continuing Education of Syracuse University in association with the Educational Resources Information Center of the U.S. Office of Education to serve the adult education and training profession. The purpose of ERIC/AE is to provide easier access to information useful in the education, training, and retraining of adults and out-of-school youths. Information about the ERIC network of clearinghouses, services of central ERIC, services of ERIC/AE, how the clearinghouse on adult education can be helped, information about the staff of ERIC/AE, and a list of 18 ERIC clearinghouses are included in this brochure. **(439)**

GOOD, CARTER V. (ed.). **Dictionary of education.** 2nd edition. New York: McGraw-Hill, 1959. 676 pp.

This dictionary is the first instrument of the educational profession as a whole which is dedicated to exactness of specialized words and precision of meaning. The terms defined and cross-references total approximately 25,000. In addition to the main dictionary, there are sections defining educational terms used in Canada, England, France, Germany, and Italy. **(440)**

LYNTON, ROLF P. and UDAI PAREEK. **Training for development.** Homewood, Ill.: Richard D. Irwin, Inc. and The Dorsey Press, 1967. 408 pp.

Training is viewed as being concerned with people-in-jobs-in-organizations and as having the goal of achieving a lasting improvement in on-the-job behavior. Not only the role of the trainer but also the roles of two other partners in the training process are considered: the participants and the organizations in which they work and are to use their training. Focus is on the necessity for training to use the total environment of the participants, both within the organization and within the training situation, so as to gain the participants' commitment to change and so as to support them in their attempts to express and maintain that change in their job behavior. Ideas are borrowed eclecticly from many sources. The book has five major divisions. Part I distinguishes training from other instructional activities and examines the contribution of the participants and their organizations to the training process. Parts II, III, and IV look at training from the standpoint of the trainer: Part II discusses the pretraining phase, including determination of training needs, selection and preparation of participants, choosing training methods, and designing the program: Part III takes up the training phase, emphasizing the development of group climate and the role and style of the trainer in interacting with participants: and Part IV considers the posttraining phase, including support of the participant in his work environment and evaluation of the training. The final section, Part V, deals with the training institution itself and the development of training as a profession. Information and ideas are presented in six different formats: (1) the running text presents an organized view of training: (2) indented material within the running text presents examples that illustrate the text: (3) tables and figures present numerical data and graphs: (4) charts labeled "exhibits" present summaries of conceptual material presented in the text, sample forms, and other aids designed to help the reader try out ideas mentioned in the text: (5) set-off "boxes" present summaries of research findings only mentioned in the text: and (6) end-of-chapter readings discuss in detail ideas brought out in the text or present differing points of view. References are given in footnotes and in support material. **(441)**

MESICS, EMIL A. **Training and education for manpower development** (Bibliography series no. 7). Ithica, N.Y.: New York State School of Industrial and Labor Relations, Cornell University, December 1964. 99 pp.

This annotated bibliography, presenting sources of basic information on training, covers sources published before 1964. It revises and updates earlier bibliographies distributed by the school. Nine major areas are covered: Training—General, Work Skill Training, Technical and Vocational Training, Supervisory Training, Management Inventory and Executive Development, Training Methods and Techniques, Audio-Visual Aids, Training Evaluation, and Bibliographies. Annotations cover 474 references. **(442)**

MURPHY, LIONEL V. A select bibliography of employee development and training. **Personnel administration** 19:5, September-October 1956. pp. 62-68.

Partial contents are: Sociology of Work: Training—General: Determining Training Needs: Management Training and Development: Training Methods and Techniques: Supervisory Training and Development: Human Relations Training: Creative Thinking: Reading. *(USCSC 2, edited)* **(443)**

U.S. CIVIL SERVICE COMMISSION, ATLANTA REGION. **Interagency training programs: annual bulletin 1968-1969.** Atlanta, Ga.: The Commission, 1968. 56 pp.

The Commission announces regional training courses around the country in annual bulletins. Courses in this bulletin are grouped under major headings: supervisory development; management development; communications and office skills training; personnel management (including methods of instruction); specialized agency training; and other developmental training. **(444)**

U. S. DEPARTMENT OF AGRICULTURE. **Special programs department: the graduate school 1967-1968.** Washington, D.C.: The Department, 1967. 96 pp.

This is a catalog of special programs of the Department of Agriculture which are offered on two bases: public programs, regularly scheduled courses open to all qualified government personnel and announced in this bulletin; and in-agency programs, specially designed courses in consultation with the agency to fit the unique requirements of a particular agency. Major aspects of the curriculum include: seminars and workshops on computers, seminars and workshops in management and professional development, and programmed instruction in various subject-matter fields such as communication, statistics, management, and computer programming. **(445)**

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. PUBLIC HEALTH SERVICE. NATIONAL COMMUNICABLE DISEASE CENTER. **National Communicable Disease Center training bulletin January 1, 1968 to June 30, 1969.** Atlanta, Ga.: The Center, 1968. 131 pp.

In addition to courses in communicable disease control, this annual bulletin lists courses offered in training methodology. Methodology courses listed in the current bulletin are: Training Methods–Group- and Self-Instructional Techniques; Coaching Practices; Organization of Inservice Training; Planning, Presenting, and Evaluating Inservice Training; Evaluation of Training; Development of Training Courses; Preparation and Use of Training Aids; Training Aids Production–Advanced; Preparation of Overhead Transparencies; Training Methods and Aids; Training for Instructors; Involvement and Simulation Techniques; How to Select and Use Programmed Self-Instructional Materials; Personal Communications at Work; Training Facilities–Design and Equipment; Use of Automated Equipment in the Classroom; Facilities for Learning–Design, Equipment, and Management; Consultation Skills–Development and Use; Personal Skills Training. **(446)**

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. OFFICE OF EDUCATION. **Research in education.** Washington: U.S. Govt. Print. Office. Monthly.

This is the monthly catalog published by the Office of Education through the Educational Resources Information Center (ERIC) announcing new projects supported through its Bureau of Research, as well as final reports received from completed projects. It contains résumés from the 18 ERIC Clearninghouses, including the ERIC Clearninghouse on Adult Education. The résumés highlight the research information on each report and project, as well as indexes that cross-reference the subjects, investigators, institutions, contracts and grant numbers, and legislative authorizations for the research activities. In addition, every issue contains information on the general literature in the various subject areas. Indexes are cumulated and published separately at the end of the year. *(ERIC 1, edited)* **(447)**

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